REPORT RESUMES

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EDUCATIONAL DISSEMINATION AND DESIGN CONFERENCE--CONFERENCE ON LEARNING IN HIGHER EDUCATION--FINAL REPORT.
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HOW TO MOBILIZE STATE COLLEGE FACULTY RESOURCES TO STUDY THE MEANS FOR IMPROVING THE QUALITY OF INSTRUCTION WAS THE CONCERN OF THIS PROJECT. THE PROJECT WAS A 2-DAY CONFERENCE ON LEARNING IN HIGHER EDUCATION, HELD IN JANUARY 1965 WHICH WAS FOLLOWED IN APRIL, 1965, BY A MEETING OF A SMALL NUMBER OF THE CONFERENCE DELEGATES TO DEVELOP FURTHER THE SUGGESTIONS OF THE CONFERENCE FOR SYSTEMWIDE RESEARCH INTO LEARNING IN HIGHER EDUCATION. THE FOLLOWUP GROUP PREPARED RECOMMENDATIONS FOR MOBILIZING AND SUPPORTING THE EARLY STEPS OF A SYSTEMWIDE EFFORT TO INVESTIGATE THE CONDITIONS OF LEARNING IN HIGHER EDUCATION. PROCEEDINGS OF THE CONFERENCE AND RECOMMENDATIONS FROM THE FOLLOWUP MEETING ARE INCLUDED IN THIS REPORT. ONE OF THE RECOMMENDATIONS DEALT WITH THE ESTABLISHMENT OF A RESEARCH CENTER OR CENTERS FOR RESEARCH WITHIN THE CALIFORNIA STATE COLLEGES. ANOTHER URGED THE ORGANIZATION OF A TASK FORCE TO DEVELOP DETAILED PLANS FOR A COORDINATED, SYSTEMWIDE RESEARCH EFFORT INTO LEARNING AND INSTRUCTION AT THE STATE COLLEGE LEVEL. (JC)

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FINAL REPORT

EDUCATIONAL DISSEMINATION AND DESIGN CONFERENCE: CONFERENCE ON LEARNING IN HIGHER EDUCATION

Cooperative Research Project Number F-039

The California State Colleges
Office of the Chancellor
2930 West Imperial Highway
Inglewood, California 90303

1964-1965

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PROBLEM ON WHICH THE PROJECT WAS FOCUSED

The California State Colleges throughout their histories have placed great emphasis on instructional excellence. In recent years faculty of the several State Colleges have attempted to study intensively the factors affecting the quality of learning in their respective institutions.

It has become apparent that, for the California State Colleges to continue to place main emphasis on the quality of instruction, it would be necessary to encourage greater faculty research into the factors influencing college learning, to coordinate the research efforts of faculty scattered throughout the California State Colleges, and to obtain greater support for such research.

This project, then, was concerned with how to mobilize State College faculty resources to study the means for improving the quality of instruction.

OBJECTIVES OF THE PROJECT

The primary goal of this project was to set in motion faculty resources for an exploration of the conditions under which the most effective learning takes place in a college environment. Another major objective of this project was to determine how to encourage fundamental research into the learning process itself, both on an experimental and on an applied basis. A further objective of this project was to learn more about ways of articulating many diverse disciplines in a group project of the magnitude planned.

PROCEDURES

In order to achieve the goals set up for this project, a two-day Conference on Learning in Higher Education was held in January, 1965. This was followed in April, 1965, by a meeting of a small number of the delegates to the conference.

Delegates to the conference represented all of the California State Colleges, as well as the Office of the Chancellor, and a variety of disciplines concerned with learning.

The conference was organized into (a) plenary sessions where the participants heard addresses and papers concerned with important issues in the realm of factors affecting college learning, and (b) discussion meetings where the delegates examined the factors affecting learning and developed recommendations for coordinated research into these factors within the California State College System.

The follow-up meeting developed further the suggestions of the conference for systemwide research into learning in higher education and prepared a set of recommendations for mobilizing a systemwide effort to investigate the conditions of learning in higher education.

The details of the procedures used in the conference and the follow-up meeting are presented more explicitly in the Proceedings of the Conference on Learning in Higher Education contained in the Appendix to this report.

CONCLUSIONS AND IMPLICATIONS

The conclusions drawn from the efforts supported in this project may be seen in detail in the reports of the conference discussion groups, in the conclusions and recommendations at the close of the conference, and in the recommendations made by the follow-up group. All of these may be found in the Proceedings of the Conference on Learning in Higher Education Appendix.

In general, the conclusions drawn are:

1. The opportunities in the California State Colleges for exploring the many conditions that influence college learning surpass those of any other system of higher education;
2. The California State Colleges have a special responsibility for effective instruction;

3. There are many aspects of learning in higher education that need investigating;
4. There are many questions about the factors affecting learning in higher education that need answers;
5. The faculties of the California State Colleges endorse a systemwide, coordinated approach to investigating learning in higher education;
6. The efforts carried out in this project did not represent a final step in the mobilization of faculty research efforts but represented the initiation of continuing explorations;
7. Similar conferences should be held annually or semi-annually to bring together faculty doing research growing out of the original conference and to stimulate further research efforts;
8. A research center, or centers, should be established to generate, coordinate, and conduct research on learning and instruction within the California State Colleges;
9. It is urgent that the California State Colleges take immediate steps to obtain support for an extensive, systemwide effort to investigate and improve the conditions of effective learning;

10. A "Task Force" of faculty selected from the several State Colleges should be organized as soon as possible to develop detailed plans for a coordinated, systemwide research effort into learning and instruction and to prepare a proposal for financial support for such an effort.

APPENDIX

Proceedings of the Conference on Learning in Higher Education

The California State Colleges

Proceedings of the Conference on LEARNING IN HIGHER EDUCATION*

Held at San Fernando Valley State College, January 15-16, 1965

This report was prepared by the California State Colleges
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Earl V. Pullias
University of Southern California

INTRODUCTION

This volume is a report of the 1965 California State College Faculty Conference on Learning in Higher Education, held at San Fernando Valley State College, January 15-16, 1965. The participants represented all of the California State Colleges and the Office of the Chancellor of the California State Colleges.

Development of the Conference Idea

The California State Colleges throughout their histories have placed a great emphasis on excellence of instruction. In recent years individual faculty of the separate State Colleges have attempted to expand their studies of the factors influencing the quality of learning at the college level.

Recognizing the desirability of encouraging faculty research into college learning, obtaining greater support for such research, and coordinating the research efforts of faculty scattered throughout the California State Colleges, Chancellor Glenn S. Dumke proposed that funds be obtained to mobilize such a systemwide effort. To this end, Vice Chancellor Raymond A. Rydell, with the assistance of Dr. Robert Durrenberger and Dr. Arthur Marion of San Fernando Valley State College and Dr. Leonard Towner of California State College at Long Beach, prepared a proposal for a contract under the Cooperative Research Branch, Office of Education, U. S. Department of Health, Education, and Welfare Developmental Activities Program, to support an "Educational Dissemination and Design Conference."

The proposed contract received approval and grant support from the U. S. Department of Health, Education, and Welfare, and plans for the conference were developed by a group consisting of those who had developed the contract proposal and Dr. Ellis E. McCune, State College Dean of Academic Planning; Dr. Gerhard Friedrich, Associate Dean of Academic Planning; Dr. Anthony LaBue of San Fernando Valley State College; Dr. Samuel Levine of San Francisco State College; and Dr. Hans Guth of San Jose State College.

The Presidents of all the California State Colleges were requested to nominate delegates to the conference who would represent a variety of disciplines concerned with learning in higher education and with the education of teachers. The list of these delegates as well as those representing the Office of the Chancellor of the California State Colleges is included in the Appendix.

Structure of the Conference

During the planning of the conference, four changes from the original proposal were deemed desirable. First, the title of the conference was changed to, "Conference on Learning in Higher Education," to more clearly identify the topic of concern. Second, the coverage of the conference was expanded to include the education of teachers as well as the original considerations of factors affecting learning. Third, the items under investigation at the conference were expanded from the more technical aspects of instruction to the broader factors that influence college learning. Fourth, the duration of the conference was shortened from three to two days, to be followed by a meeting of a smaller group of the delegates for the purpose of developing a proposal for financial support for continuing systemwide study of college learning.

The program of the conference is also included in the Appendix. The papers presented, the reports of the discussion groups that followed, and the conclusions and recommendations resulting from the conference form the core of this report.

CONFERENCE PAPERS

THE GREAT SEAL OF THE CALIFORNIA STATE COLLEGES

MDCC CLVII

SOME MAJOR OBJECTIVES OF EFFECTIVE LEARNING IN HIGHER EDUCATION

Earl V. Pullias
Professor of Higher Education
University of Southern California

Introduction

During my twenty-six years of academic work in this state I have come to know California higher education reasonably well, as a participant in its processes and as a formal student of the system. This knowledge has led me to respect all segments of our great program. A special aspect of this system of higher education is its wide variety of institutions, all of which should work in mutual respect of one another. But for many reasons I have developed a special respect for the State Colleges. I am well acquainted with their deep and far-reaching problems, yet in spite of these, and perhaps because of them, it is my earnest conviction that no system of higher education in the United States has more challenge, promise, and genuine opportunity for service and significant achievement than do the State Colleges of California.

I must pause a moment to say why as a student of higher education and as a citizen of this state I hold this belief, for this belief is related to the purpose and meaning of this conference. Frankly, may I suggest that it is of utmost importance that those of you who are immediately responsible for the State College system achieve and maintain a vision of genuine greatness for the work and service of these institutions.

Here are a few of the reasons for my enthusiastic belief in the State Colleges:

1. The State Colleges must carry the major responsibility for undergraduate and first-year graduate education in this state. No other segment has the resources to carry this demanding load. But in carrying it you will have a major portion of the most promising future citizens of this state during the crucial undergraduate years. These people will be the spirit and life of this state in the future. The quality of its individual and communal life will depend in considerable measure upon them.

They will make up a large proportion of the teachers, lawyers, city councilmen, supervisors, school boards, legislators, service club leaders, ministers, church boards, business men, housewives, technicians, farmers--the people who carry on the central processes in the life of a democracy. And, of course, now and then you will develop a distinguished scholar, a governor, or a president of the Republic. This challenge would seem to be enough to stir the most unimaginative among us--perhaps even the petty and self-seeking.

2. As a system of higher education you are relatively new. Of course you have a history and traditions both in the nation and in the state. Some of that history handicaps, and much of it inspires. But my point here is that you are a varied and relatively new system, and hence you are not trapped in deadening preconceptions about the nature of education, of learning of teaching, of human ability, of meaningful achievement. Except as you may be bound by your own individual prejudices (and these are great in us all) and by a lack of imagination, you are free: free to ask questions and to seek meaningful answers through responsible dialogue and well-planned experimentation. This fresh start, as it were, is an extremely valuable asset--provided you can escape being bogged down in petty problems and can center your great talents on the fundamental issues of education.

3. If you serve well the purpose that has been suggested for you--namely, the effective education of the central body of the citizenry of this state--you will receive increasingly liberal and enthusiastic support from the people of California. In short, you are essentially the people's colleges in this commonwealth.

I would like to mention other reasons for my faith, but these must suffice. Nothing I have said should be interpreted as a disparagement of the work of other institutions of higher learning in this state. They all have a significant work, but I am expressing a simple belief that fate and circumstances have placed you in a particularly vital role.

We have met here in a conference to give special thought as to how we can most effectively fulfill our special responsibilities. We are searching for the best ways to center the powerful faculty resources in the State Colleges on the problems of learning and teaching.

Let me summarize the situation as I see it.

(1) You have a magnificent plant--buildings, grounds, laboratories, libraries.

(2) You have a corps of well-trained faculty and administrators, who are well supported.

(3) You have a large and growing body of the choice youth of this state--all of whom have the academic ability to profit from an extended college experienc

When these three factors are brought together each school year in the educational situation, what should take place in the students and faculty? In short, what are the objectives?

In the remainder of my time I wish to sketch very briefly what seem to me to be the major objectives of learning at the college level in our times. (I wish we could study the conditions that are crucial to the most effective learning, for, as you know, the conditions of learning and the learning are intimately related, but our concern today must be limited.)

Now to the objectives of learning. A failure to be clear about objectives is, in my judgment, the central weakness in all teaching and learning at all levels of formal education. In many cases, neither teachers nor students have well-defined, meaningful, and attainable purposes. As a result the learning effort is confused and flounders. But, as we all know, clear and meaningful objectives are extremely difficult to formulate.

You are aware that numerous attempts have been made to list major educational objectives. I hesitated to undertake the task of developing a tentative list for our thought in this conference. There seemed so little hope that one could add something of significance to what has often been said. Yet, on further thought, it seemed to me that this task must be done again and again, perhaps by each school system, each individual college, and indeed by each teacher.

Here then are ten major objectives of learning at the college level, submitted tentatively for your consideration. They are merely suggestive of the thought and analysis I am confident we must do, and do well, if we would do our educational job well, and if we would do meaningful research on learning and teaching at the college level.

Major Objectives

1. To bring those who study with us to "the height of the times" as individuals, and as citizens of this state, of the United States, and of the world. This, as you note, is a large, general objective which, in a sense, includes the remaining more specific ones. Many of you will recognize the phrase "the height of the times" as coming from Ortega's great essay Mission of the University. I especially like the phrase because it is so rich in meaning and in implication.

The essence of the meaning is that by the imaginative transmission of the culture of man to the college student he will be brought to know, to prefer, and to be the best mankind has achieved in knowledge, in desire, and in action. A man lives at the height of the times when he lives in terms of the fullest truth so far attained. The principle applies with equal force to such specific problems as man's optimum relation to his fellow man, to nature, or to the Infinite.

The telling implication is that anything short of this high goal is unworthy of higher education as it has developed in Western civilization, and is unworthy of the remarkable potential of man. It is a little frightening to remember that probably our ability to achieve this objective will depend in large measure upon the progress we, as teachers, have made in reaching the height of the times in knowledge, skills, and manner of life. I fear most of us live on a rather low plateau--petty, confining, impoverished--where we were marooned somewhere along the journey.

I am aware that this concept is complex, and as an objective--even a general objective--it would require much analysis, but I believe it is a powerful concept, very useful to the modern educator.

2. To embed in those who study with us the habits and the spirit of the higher learning: an urgent, humble, open, free, sincere, continuous search for knowledge and genuine understanding in every area of life. The whole enterprise of the higher learning rests upon the assumption that there is truth which the human mind can grasp and can apply to the myriad problems of human life. Here is the central purpose and problem of the education of man: What does he need to know and to be in order to live wisely--in terms of truth? Formal education proposes to guide this process.

In reality, a college or a university is the process and spirit of the higher learning organized as an institution. The very lifeblood of such an institution is an attitude of responsible inquiry, of careful thought, of continuous learning as man faces his problems at all levels of life. This second objective suggests that the college graduate should embody there attributes of the higher learning as an aspect of his second or acquired nature, available for application to all parts of life: personal, professional, political. Thus in the best civilization the creative spirit of the higher learning would come to characterize all the processes of the civilization. Such perhaps must be "the coming world civilization" of which Professor Hocking speaks so eloquently and so hopefully.

3. To refine and thus bring to a high level of proficiency the tools of learning--the means of learning. I refer here to the skills, knowledge, and habits that enable a person to carry on his own education. One may have been brought to a reasonable degree to the height of the times, but that achievement is merely a foundation from which to continue his learning. The times do not remain still. Indeed in many areas of life, and in a deep sense in all, one must run very fast in order to keep up--not to speak of adding something to that height, as the most creative and imaginative may wish to do. Further, a person may have caught the central spirit of the higher learning but may lack the skills that permit him to use that spirit in effective continuous learning.

Evidently we cannot analyze or even list these tools at this point. As of basic importance, I would include (1) reading, (2) oral and written communication in the mother tongue, (3) respect for and skill in the use of evidence, and (4) certain methods of work, including the use of a variety of library tools. It has been my experience that these learning tools, together with a certain enrichment which results from reasonable cultural opportunities, are much more important in achievement than what we often call native ability. In fact, I would venture the hypothesis that inadequacy in these areas accounts for a major portion of dropout and failure in the State College System. Be that as it may, our third objective is to equip the students with effective tools for lifelong learning or, to use the phrase of Robert Frost, to equip them "to go it on their own".

4. To cultivate imagination and creativity. Much of formal education discourages and dulls imagination, and hence stifles innovation and creativity. I believe it need not be so. Students, if they would approach the height of our complex times, must know a great deal. This knowledge is of utmost importance, but it should be achieved imaginatively. The college mind should long to go beyond what is to what could be and what should be.

In the main, I find many of my graduate students crippled in this area of mental activity. They have learned much; they are glad to learn more, and even diligently footnote each learning. But they have been taught to be afraid of their own imaginations and of their intuitive insights. I am aware that these abilities are dangerous if not carefully disciplined, but I believe that they are the most important abilities of man, and that they are abundant in all our students, although usually covered over and submerged in layer after layer of dead knowledge.

I would hope that by not doing many things we do and by doing a few things we neglect, imagination might be fostered in our college students. Could it be that we feel safe with dead, parroted knowledge and are in a way afraid of the youthful, imaginative mind?

5. To develop a concept of man that will lead to the mutual respect among all men which is absolutely necessary to the functioning of modern democracy. An understanding of the nature and potential of man as man is requisite to progress in building a good civilization. We enter upon this mammoth task of building, carrying upon our mental backs the burden of a thousand prejudices and preconceptions about the nature and ability of man. This objective envisions a body of college graduates who know, understand, and respect the bodies, minds and souls of themselves and others--a stream of graduates who can see that the real wealth of a society lies in the potential of its people. This potential is, of course, largely unrealized over the whole earth, but I am confident it will not always be so. A nation sometime, I believe, will set about to release in full measure this physical, mental, and spiritual potential. Then perhaps we will begin to see man as he can be.

But I am carried away a little. My point is that one of our major objectives should be the development of respect for man as man--a learning fundamental to the future of man.

6. To begin a specialization that will lead to the high level of mastery necessary to a significant life's work. In short, vocational and professional proficiency. Our civilization rests upon work carried on by individual men and women. All except the incapable--the seriously handicapped--are expected to carry their share of the work of the society. Thus, all education from the kindergarten through the university is vocational education in the sense that it should contribute to the effectiveness of the individual in his life's work. Few things are more foolish than drawing a sharp line between special education and general, for good education is always both.

I doubt if any technological change will eliminate the work of the world. Certainly the nature of work will change, but the evidence is strong that man would be seriously lost without work. A major objective of the college is to help young people decide upon an area of life in which they can make their contribution through skilled work, to begin the specialized training needed, and to show how all learning relates to the enrichment of that vocational aim. Thus over-specialization would be avoided, and yet the powerful vocational motive would be harnessed. In our civilization vocation is at the very center of life. To refuse to face this fact when one is teaching literature or philosophy or art is to be foolish.

Professor Whitehead, the distinguished philosopher and mathematician, said the wisest word on this point that I know:

> The antithesis between a technical and a liberal education is fallacious. There can be no adequate technical education which is not liberal, and no liberal education which is not technical: that is, no education which does not impart both technique and intellectual vision. In simpler language, education should turn out the pupil with something he knows well and something he can do well. This intimate union of practice and theory aids both. The intellect does not work best in a vaccum.

7. To develop understanding of the interrelatedness of all knowledge--to know that in a deep sense all that exists forms a great unity. This objective is closely related to what has been called the historical sense. The college-educated person learns to perceive in any one thing the essence of all things. For example, when he considers the current tension about race his thought is enriched by all of man's experience with the problem of racial differences.

But this extension of the self in thought goes much beyond the mere history of the phenomenon. Its relation to all that man knows is perceived. Thus no single event is allowed to remain in isolation; it is fitted into the whole, and by this relation the specific event achieves altogether new meanings. By this process the perceiver grows in wholeness, and perhaps in what is called wisdom.

8. To achieve and maintain optimum physical, mental, and spiritual health. This objective is in danger of being vague and meaningless. Man is a very complex being. Roughly for practical purposes the complex unity which is man can be divided into body, mind, and spirit. In behavior these three phases of man are so intricately interrelated and intertwined that it perhaps is impossible to observe them separately. By health we mean the degree to which man functions up to the full level of his potential as a person: in body, in mind, in spirit. The extent to which a person varies from this optimum functioning is the extent of his sickness.

By this, or any reasonable standard, we are often sick people. We fall far short of what we could easily be in health. One has only to recall his own experience with himself and others to grasp the waste and harm of ill health. Bodily illness is bad enough, reducing as it does the supply of energy, dampening down zest and enthusiasm, and distorting the perception of reality. Mental illness strikes even more deeply at the center of effective personality functioning, for in this case the instrument through which the organism learns, and integrates what it learns into a meaningful whole, becomes ineffective. Deeper still, I believe, and more ominous are the diseases of the soul or spirit. True we know very little about this area of life, and yet it may be (as prophets, seers and philosophers have tried to tell us through the ages) that this deeper reach of man is his essence--that a sickness in this area will make dust and ashes of the most glowing achievements of the body and mind of man. Health of the spirit gives peace, perspective, zest and meaning to the whole enterprise of man. Ill health here seems to breed the "dark view," destroys the framework, the elemental faith, without which man becomes fragmental, partial, deeply frustrated, sick at the very core of the self.

Be these details as they may, I am baffled that any people should neglect the objective of health at any level of education. If this job is poorly done, really nothing else we do in education matters.

9. To achieve an understanding of, respect for, and skill in the processes of democratic government. These processes are extremely complex--difficult to understand and even more difficult to practice. For this reason I believe effective self-government will develop very slowly in the so-called new nations of the world. To gain independence does not bring the attitudes and skills of self-government. In our own country, these processes are on severe trial in every generation, not least in our own.

Freedom is necessary to full learning, to growth, to creative adaptation to increasing and swiftly changing demands. But freedom must be controlled--must be balanced by order--or it will rapidly destroy itself by its excesses. The ancient Greeks taught us that if freedom is not self-controlled it will go to such excess as to destroy the perfromer or it will be controlled by external, imposed forces. This ability to achieve effective self-control which produces a creative balance between freedom and order is the genius of democracy. Anyone inclined to underestimate the difficulty of this achievement needs only to observe or experience the turmoil and tension of our local college and university campuses as they attempt to carry on a measure of self-government.

My point is simple: Every college graduate should have made reasonable progress toward achieving the understandings, attitudes, restraints, and skills fundamental for the citizens of a democracy.

10. The development of strong character guided by a coherent set of values that are stable yet flexible and growing. Or to state it in another way, to help students consciously formulate and accept after careful examination a philosophy of life by which to guide their lives.

The young people in our colleges will be consciously and unconsciously searching for a body of consistent principles in terms of which to make life's decisions and choices. In our time they are often almost in desperate need of purpose, of central meaning, of dedication. Whatever their formal training, without these qualities they will be only partial men and women, and as such they will be subject to every form of disintegrative and destructive force.

The basic values of our civilization--those at the heart of all our institutions, customs and traditions--are the Judeo-Christian values. They have been influenced and gradually refined, I believe, by all the streams of thought that have flowed into our melting pot. We are thus in position to stand at "the height of the times," heirs to all that has gone before in respect to values as well as technology.

Our young people will be asking, What is right and what is wrong? What is true and what is false? What is beautiful and what is ugly? What matters most and what matters less? No fear, cynicism, or confusion on our part as teachers can free us from being an important part of this search. Certainly we cannot give them categorical answers. We would not wish to if we could. Yet here is a responsibility no teacher at any level can escape, or should wish to escape. Everything we are and do and say speaks loudly of our basic values--the conclusions we have reached, or failed to reach, about the major problems of life.

Doubtless, value is the central problem of existence, but I can say no more about it now except to ask, Can the growth of sound character guided by truth and enlightened by love be left out of our list of objectives for college learning? I believe not.

Conclusion

This is an illustrative and not an exhaustive list. I know such a set of objectives is baffling and even frightening. How much simpler it would be to limit ourselves to the teaching and learning of certain relatively dead subjects. Such knowledge is so easy to measure; and if no one asks us what we are doing and why, the effort is neat, and perhaps ego-enhancing. But you and I know deeply that this routine learning of generalizations from other peoples' experience is at best only a means to something deeper and more fundamental--something that releases and unfolds the incomparable potential of man for all he can be as a person. If we do not probe to these depths or reach for such heights in education we cannot hope to justify the trust that has been placed in us as educators. All our technical expertise, our special skills, and our plans and experimentation will come to naught if our notion of the objectives of education misses the mark and our effort gets bogged bown in trivia which, like bad money, crowd out the good and significant.

And it is my earnest belief that great objectives befitting the nature of man give life and meaning and a growth-producing wholeness to our work as teachers. Teaching, badly done, destroys both teacher and taught; greatly done, it is an incomparable avenue to continuous growth.

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THE CHALLENGE WHICH LIES AHEAD: PROBLEMS AND OPPORTUNITIES FOR HIGHER EDUCATION IN THE STATE COLLEGES IN THE YEARS AHEAD

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The California State Colleges

Fifteen years ago, in 1950, I was invited to take my first major administrative job. From that moment on, every administrative reponsibility I have had has been deeply concerned with teacher education and its problems. Even in the small liberal arts college, where I spent seventeen years of my professional life, one of our major responsibilities was to turn out a certain number of elementary and secondary school teachers, and it was a matter of great pride for that college to have all of its candidates accepted, and most of them praised.

Since that time I have been working with the California State Colleges. First of all, on the campus of San Francisco State, and secondly, with the system as a whole. As to San Francisco State, I was most pleased last Tuesday, in St. Louis, to hear Felix Robb, the president of George Peabody College for Teachers, compliment San Francisco State at great length in connection with its teacher education program. He delivered this compliment before a plenary session of the Association of American Colleges, which is probably the largest higher educational association in the nation with the exception of the ACE. It so happened, that I was sitting next to my former boss, the President of Occidental, when this encomium was uttered, and you can imagine the great satisfaction I felt in having San Francisco State held up nationally as a prime example of how good teacher education can be.

Since I have been associated with the system of California State Colleges, which produces most of the public school teachers that are produced in California, I have been confronted with the problems in this area on a tremendously vaster scale. Our statistics are now in the thousands, our demand figures even larger. Our concern with rapidly developing public interest in the problems of teacher education is mushrooming at an even faster rate than the interest itself.

Recently we have been confronted with a sharp change in public attitudes toward the teacher training program. We have seen this illustrated in the election of public officials who have certain definite philosophies of teacher education, different from those held by similar officials in the past. We have seen it in legislation such as the Fisher Bill, and in the appointment of individuals to the State Board of Education who represent a marked change from the attitudes of former incumbents. We are now even facing a situation in which the legislature is proposing a legislative solution to the master teacher and internship problem. All in all, we have our work cut out for us.

But before I get into the two major points I wish to make, and I assure you I am going to speak very briefly, I want to emphasize one preliminary item. The item is this: the problems that we are facing today in this tremendous system of colleges engaged up to the hilt in teacher education process are just about the same as the problems that I faced as dean of a small liberal arts college some years ago. This is not to say, of course, that the problems are the same in magnitude: they are much greater, both in this system and nationally in general, but the basic issues, the basic philosophical questions, are still the same.

One of these basic questions is--who is going to educate our teachers? Is it going to be the colleges and universities engaged in teacher education, or is it going to be lay boards, the legislature, or government agencies, as was recently recommended by Dr. Conant? My own stand on this question is very clear. I think the teacher education institutions should educate the teacher and should be responsible for the curriculum which is designed to accomplish that education. The second fundamental question is--do we spend more time teaching people what to teach or teaching them how to teach it? I hope very much that we have exhausted ourselves on this futile issue and that we will finally and at long last stop spinning our wheels. I think all of us engaged in this process on whatever side of the academic fence we find ourselves, recognize that both are necessary. It is a question simply of not going overboard in either direction, and I think we are about ready to agree on this as a basic principle, and turn our attention to more significant problems. A third fundamental question is--if the teacher education institutions are to structure the curriculum designed to educate the teachers, then how and on what informational and philosophical bases are those curricula to be structured? The answer to this one is equally clear, although not at all simple. The curricula must be structure on the best available information as to the learning process, and we should be alert to the development of any new information that we can possibly gather so as to make our teacher education programs more and more competent and effective.

This leads me directly to the first point of my short talk this noon and it is very simply this--I am convinced that in the California State Colleges we have the largest aggregation of experts in teacher education and related fields that exists in this nation, and perhaps in the world. I want to emphasize that I think teacher education ought to be closely related to such areas as psychology, sociology, and various aspects of social science, humanities, and the sciences because it is to integrally concerned with all of them. We have, I say, the largest aggregation of experts in the problems of education that exists in the nation today. Yet, because the California State Colleges have never, up to the time of the Master Plan, operated as a system, we have never known on the part of the left hand what the right hand was doing. We have never been able to mobilize our full strength in this area so that we might be able to solve some of the problems that confront us. I have taken this argument before representatives of the major foundations of this nation and I have had conversations with people like Alvin Eurich about it, and everyone is in agreement that one of the real frontiers of knowledge, one of the no-man's lands of research, is this area of the learning process--and this despite the tremendous amount of effort that we have historically and characteristically put into it and the tremendous interest that has always existed and that currently is reaching new heights of enthusiasm. There is a lot left to be found out about the learning process. Actually, as you know, we know very little about it. Our theories of how people learn and how to teach are just that and not much more--theories. We have developed curriculum and approaches to these problems on the basis of hypotheses. This, of course, is a perfectly legitimate way to approach the solution to problems like this because we must try out various hypotheses to see if they are workable, and we have found that many of them are and some of them are not. But somewhere along the line, as large a group of people as we have in the California State Colleges ought to be able to push quite effectively against the frontiers of knowledge in this field.

I would hope that this conference could come up with some suggestions and recommendations as to how we could do this. It might be through the establishment of institutes--perhaps one in the north and one in the south which would correlate and coordinate and mobilize the research abilities in these areas from all of the State Colleges and enable us to get far greater and more effective fiscal support for these efforts. It might be through the setting up of a coordinating center somewhere in the state, not necessarily in my office, which would work with faculty people who were interested in this field and which could act as a clearing house between them and among them. We might stimulate the development of a statewide library on this sort of problem. We might operate just as we have in the past, on an individual basis, but with far more encouragement from the center for individuals doing work in this field. I am not sure just what the outcome should be, and I am not sure that any of these suggestions is the right one, but I am certain of one thing, I feel certain that this conference, if it devotes its mind to it, could and should come up with ways and means of mobilizing the tremendous faculty strength and ability which we have in this area of academic concern.

The second and last point I want to make is this, the faculty members engaged in teacher education in the California State Colleges over the last several years have faced some very, very serious problems. We have reorganized the system so that procedures which formerly related each college to the State Department of Education have been altered in terms of policy making. We have confronted a change in the philosophy of the electorate of California which has reflected itself in the philosophical approaches of the State Board of Education, the Superintendent of Public Instruction, and the Legislature, and finally, we have faced and are facing legislative changes, some of which have been accomplished and some of which have been proposed, which strike deeply at the roots of existing processes in this area. I would hope, as this conference moves into its discussion periods, that these problems might well be grappled with frontally so that the State College faculties in this and related fields could recommend to me, and through me to the Board, a position which the Trustees should take on several of these matters.

Let me give you an example of one problem which has been before us for some time and which only recently began to ease. In the process of the implementation of the Fisher Bill, the State Department of Education began to use the accreditation procedure to exert specific controls on course offerings in the teacher education programs in the various State Colleges. There was much misunderstanding and apprehension about this procedure and also considerable delay in informing the colleges whether or not their proposed new programs, revised under Fisher Bill provisions, were to be acceptable. After receiving many complaints from the various campuses, I wrote Superintendent Rafferty on December 11 calling this problem to his attention, and included these paragraphs:

"As a result of these uncertainties, there exists confusion as to the extent to which the State Board of Education and its Committee on Accreditation will concern themselves with specific curricular details in colleges seeking accreditation or reaccreditation. I am sure that both the State Board and State Department intend to operate within the definitions and limitations established in California state law and will leave no doubt that they respect the academic prerogative of the individual colleges and their faculties to develop through established channels, the specifics of their respective curricula.

"In order to emphasize the correctness and importance of such differentiation of functions, I refer to the policy on teacher education, adopted by the Board of Trustees of the California State Colleges on February 27, 1964, and call your attention to Section B, Principles 2 and 4, which read as follows: 'The teacher education program including required general education, majors, minors, professional education and admission to and supervision of practice teaching, is an all-college responsibility and therefore shall be subject to approval by the faculty of the college. Academic subject matter areas accepted for programs of teacher preparation in the California State Colleges shall be designated by the Chancellor and approved by the Board of Trustees.'"

Later that month, Dr. Rafferty replied, echoing my concern about this problem, and stating that the Committee on Accreditation of the State Board had given paper approval under the Fisher Act to all the State Colleges which had similar programs approved under the old statutes. In addition, the Committee made it possible for this paper approval to be extended to internship programs whenever the college made such a request. He promised that the actions of the Accreditation Committee would be presented to the State Board for approval in January and as soon thereafter as possible the visitations by accrediting teams would commence, with highest priorities going to the newer state colleges.

I think this particular episode demonstrates how a united stand on a policy position can sometimes help to accelerate an appropriate solution. I know that many problems remain, and I would hope that in your meetings you will confront them. One of them has to do with a resolution concerning selection of master teachers. Again, I think that the teacher education faculties in the State Colleges should play an important role in this process.

So let us use this conference for two purposes. First of all, to mobilize the strength of our faculties in these areas of teaching and learning so that the California State Colleges can begin for the first time to make their contribution to these fields a significant one and secondly, let us confront openly and squarely some of the problems before us. I assure you that you have the full support of my office and the Trustees in your consideration of these issues and concerns and if there is any possible way in which we can be of assistance, you have only to call upon us. Moreover, if you provide us with appropriate recommendations as to policy positions which we might take, you can be certain that we will take them and take them firmly and perhaps bring about as happy a solution as we helped to bring about in the case of the first stage of the problem of the teacher accreditation process.

We are a sleeping giant. We have untold strength and influence if we can only learn to use it. It is admittedly fun and exciting to be divisive, but the issues currently before us are too great for us to pursue this hobby with a clear conscience. Let us mobilize the great strength which we have, for without question the California State Colleges, if they can learn to work effectively together, can be the greatest influence in teacher education in California, and that means one of the greatest formative factors in the nation. This prospect is clearly before us. Let us use this conference as the first step to that end.

THE CRITERIA OF EFFECTIVE LEARNING - COGNITIVE PROCESSES, KNOWLEDGE, ATTITUDES AND SKILLS*

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Mr. Chairman, Chancellor Dumke, and members of the Conference.

It would not be truthful for me to say that I am happy to be here. For one, the purpose of my talk in relation to the conference is just beginning to become apparent to me. For two, there is little important knowledge available on the topic of knowledge, which I am going to speak on.

Perhaps the main reason I did not run out on you is that my curiosity about the nature of knowledge impelled my thoughts forward, and I hoped you would be sympathetic and yet critical listeners to whom I could reveal some of these thoughts. Dr. Pullias summarized the objectives of higher education (and perhaps all education) in the categories of Truth, Goodness and Beauty.

To move from these molar notions (I use a basic term from the behavior theory of Edward Tolman, my teacher) to the molecular notions of stimulus and response which are the foundation stones of research in contemporary American psychology is to cross a wide chasm, so wide that I am sure you are about to see me fall into the abyss. Nevertheless, I am going to analyze (as my time allows) the molar notions of Truth, Goodness and Beauty into some terms of current psychological theory. In addition, I will make some general remarks on research on these notions.

Analyses such as I am going to make have been made before. The best established result has been the analysis of all knowledge into habits as was done by the S-R associationist school of psychologists: Thorndike, Watson, Hall, etc. The simplicity and power of this result is to be greatly admired, but unfortunately most items of knowledge are more complex than a habit. More promising would be to do an analysis of knowledge using a cognitive theory such as espoused by Tolman and more recently by Bruner and

* The content of this paper owes much to conversations the author had with his colleague, William M. Resch, Assistant Professor of Psychology.

which also looks back to 19th Century British Associationism. This I am going to do.

The fundamental construct of cognitive theory that we will use is that of a concept. A concept is the mental counterpart of a property or class of objects. By "object" is meant any object of study not merely physical objects. Important auxiliary constructs are these: primary concept e.g., red; dimension e.g. color; idea, which is a compresence of concepts e.g. a red ball; image, which is an undifferentiated conception of an object, e.g., a red ball, as seen by an infant who does not yet know the concepts of red and ball; rule, which is an association between concepts or between dimensions, e.g. a ball dropped on the ground will bounce; skill, e.g. motor capability to bounce a ball. My aim is to describe in general terms the cognitive states that are involved in each of the fields of knowledge. In the discussion of these states I will distinguish two types of cognitive processes: (1) the processes of attaining the cognitive state and (2) the process of utilizing the cognitive state.

The achievement of an adequate conceptualization of the cognitive states and processes which are the components of knowledge would solve the first problem in establishing the criteria of effective learning. Interdependent with the first problem is the second problem, which is to develop an adequate method for measuring the degree of attainment of cognitive states and the readiness for utilization of cognitive states.

To facilitate the conceptualization and the measurement of the cognitive states we must analyze Truth, Goodness, and Beauty to find the essence of each and to condense this essence into a form that will be amenable to psychological analysis.

Let us start with Truth. My analysis shows Truth to consist of five components: (1) facts (2) theories (3) methods (4) the theory correction procedure (5) the theory elaboration procedure. I will discuss these in order and in doing so I will give examples of each because my categorization may not coincide exactly with yours.

A fact is a true proposition (a set of synonomous sentences) that refers to an event or condition or object in a domain of study. An instance of a familiar fact is "this paper burns". Information about a fact or its referent event can be presented to a person by demonstration, by picture, or by verbal description (as I have just done).

The cognitive state that corresponds to a fact is an idea. As I define it, an idea of an event is the compresence of concepts that are the counterparts of the properties which in their compresence comprise the event which the idea is about. A person knows the fact if he has attained the idea corresponding to the fact. In the example we are considering, a person knows this paper burns when the concepts of paper and burns, which are the focal concepts of the idea, are activated simultaneously and are each paired with the same spatial temporal concept. Also activated at that time are a conglomerate of other concepts which are the background concepts of the idea.

The cognitive process involved here is mainly that of activating concepts previously attained. When a component concept of an idea has not yet been attained then the processes of concept learning or concept discovery must take place in order for the idea to be attained. When information about a fact or its referent event does not fully activate the focal concepts or the focal concepts are not fully attained, then it is still possible for the person to attain a cognitive state that registers the occurrence of the event as an undifferentiated or partially differentiated whole. This state is called an image; an image, so to speak, is a fuzzy idea.

Measurement of the attainment of an idea can be carried out in several ways. By far the most usual method of determining if a person knows a certain fact is to require the person to state that fact. Typically the person is prompted by being provided with part or even most of a statement of the fact and he is required to provide the remainder. The flaw in this method is that a correct verbalization can be produced by a person if he has learned the verbal statement even though he has not attained the idea. In other words he could parrot back the correct verbal statement. This possibility is quite probable when information about the fact is presented by verbal description. Methods of measurement that require more than mere verbalization are based on utilization tasks.

The simplest utilization task requires the person to group together events that have as components the same focal properties. For example, the person is given one instance (or more) of the event class paper burns and he is required to group together all the events that are the same as it. This task can be altered so as to demand a more difficult utilization by not giving the person an instance of the event class to start with. This is a free grouping task and utilization of an idea occurs when the person spontaneously groups together the events that are the counterpart of that idea.

Another utilization task requires the person to state facts that are relevant to the testing of a specific theory which is presented to the person. Since theories are often stated in terms that refer to very inclusive classes of objects, facts relevant to the testing of them must also be stated in these terms. Hence, if a fact is to be widely utilized it needs to be restated in more general terms than those used in its initial statement. For example "this paper burns" would be restated as "this carbohydrate oxidizes" in order to be used to test some theories in chemistry. We can summarize the point by saying that many utilizations of a fact for testing theories require that it be transformed into a more general fact.

The most difficult and important utilization task requires the person to induce a theory from facts. Simple induction utilizes facts all referring to the same properties. General induction utilizes facts referring to different properties, and to utilize facts in this way the person needs to transform them into more general facts.

In the general induction task the person has to discover for himself the appropriate inclusive classes in which to reclassify the events which correspond to his facts. The cognitive process involved here is the attainment of new concept-dimensions which will allow perceived events previously perceived as completely different to be then perceived as having a concept in common.

Theories are the second component of Truth. A theory is a proposition or a set of propositions that refer to all events or conditions in a domain of study. Some theoretical propositions are generalizations from facts and we will refer to these as empirical laws. Some empirical laws relate two properties, other empirical laws relate two variables, and these latter are usually functional relationships. An instance of a property-empirical-law is "all paper burns"; another is "all carbohydrates oxidize". Other theoretical propositions are directly about events and conditions in a domain that is more fundamental than the observable domain to which the facts refer; they only refer to the observable domain by inference. We will call these propositions hypotheses. An example here would be the hypothesis about the electron-proton model of the chemical elements.

The cognitive state that corresponds to an empirical law is a rule. A rule is an association between concepts when it is the counterpart of a property-empirical-law, and a rule is an association between dimensions when it is the counterpart of a variable-empirical-law.

The cognitive state that corresponds to a hypothesis is also a rule, but here the association is between concepts and variables that are counterparts to properties and dimensions in the domain referred to by the hypothesis.

Measurement of the attainment of a rule can be carried out in several ways. As with facts, by far the most usual method of determining if a person knows a theoretical proposition is to require the person to state that proposition. This method and its flaws are the same as in the measurement of attainment of ideas. As with facts, to require more than mere verbalization from the person leads us to utilization tasks.

The chief utilization tasks for measuring the attainment of a rule are to require the person to explain or predict an event by using the appropriate theoretical propositions that refer to the properties composing that event. In explanation, the event, its picture, or an instance of its fact are presented to the person and he is required to state the theoretical propositions from which the fact can be deduced. In prediction, the person is presented with the initiating focal property of the event (or its picture or verbal description) and he is required to predict the outcome focal property by using the appropriate theoretical propositions. The prediction utilization task is part of the theory correction procedure which we will be discussing shortly.

Methods are the third component of Truth. Methods are the motor activities a person engages in when he manipulates events, conditions, objects, etc. in a domain of study to produce a new event, etc. that is desired. An example is the method of igniting a substance by an electric spark in a controlled atmosphere. The cognitive state that is the counterpart of an organized motor activity is a skill. Even skills are more complicated than habits since they permit modifications of behavior on the basis of continual information from the environment which habits do not permit. Also skills are more complicated than habits because a whole chain of responses (not just a single response) is associated to a stimulus. For lack of time I'll not consider methods any further.

The theory correction procedure is the fourth component of Truth. This is the procedure whereby predictions are made and checked against results in order to test the theory and correct it if false predictions are made. The carrying out of the theory correction procedure involves motor and verbal activity. On the motor side there are actions of the person based on known methods made upon materials in the domain of study which eventuate in results. On the verbal side there are the verbal expressions of the actions. These sentences in conjunction with the theory allow the person to deduce predictions which can be matched with the results. If the match is a good one no change in the theory takes place. If the match is not good, then actions (verbal and motor) are begun to correct the theory and modify the methods.

The cognitive states that are the counterpart of the theory correction procedure are motor skills, verbal skills and a rule. The motor skills are the capabilities to carry out the appropriate actions on the materials to produce the results. The verbal skills are the capabilities to make the deduction of the predictions from the theory and the statements of the actions. The rule is the knowledge that the theory correction procedure will lead to the detection of false theories and will lead to the support of true theories.

The theory correction procedure is taught by example in all scientific academic disciplines and in many other academic disciplines as well, but a general formulation of this procedure is usually not presented to the student except in a philosophy of science course.

Measurement of the attainment knowledge of this procedure can be carried out by having the person give a verbal statement of the procedure, but in current practice this is usually not done since a general statement of the procedure is usually not presented to the person. The usual measurement of attainment is through utilization tasks. No formal measurement is made, but the person is continually given the task of testing theories, and attainment is indicated if the tasks are carried out correctly.

Knowledge of the theory correction procedure is a matter of degree. A person can know this procedure in one discipline (or just one area of a discipline) without knowing it in other disciplines (or other areas of the same discipline). Hence, measurement by utilization tasks should cover many fields of application. Thus, for example, a physics student should have his knowledge of "scientific method" measured by giving him a theory in literature to test.

The theory elaboration procedure is the fifth and last component of Truth. This is the procedure whereby deductions are made from statements in a theory to produce new statements in that theory. In this procedure one starts with a proposed theorem and then applies the rules of inference to the axioms and previously proved theorems of the theory to create a proof of the proposed theorem. Often after the proof is begun the proposed theorem is modified to make it provable, or easier to prove, or perhaps more general. This procedure is used in all domains of study, but its thorough use occurs in those disciplines where theories contain many propositions and these are formalized in a form conducive to logical and mathematical deduction. The cognitive states that are the counterpart of the theory elaboration procedure are verbal skills and a rule. The nature and measurement of these states are similar to the cognitive states of the theory correction procedure, and with my time being limited I will not pursue this topic any further.

Now let us turn to Goodness and Beauty and in our limited time deal with them quite briefly. Goodness and Beauty are composed of components that parallel the components of Truth. The cognitive states in each of the corresponding components are the same. Corresponding to facts we have this: In Goodness there are propositions that refer to good and bad things (human behavior, social institutions, objects, conditions, events, etc.) In Beauty there are propositions that refer to works of art, things of beauty, things of ugliness, etc.

Corresponding to theories we have this: In Goodness there are maxims as to what is good and bad. In Beauty there are principles about beautiful arrangement of materials of art.

Corresponding to methods we have this: In Goodness there are ways of behaving to satisfy or control one's motives and to please other people; there are ways of organizing the social behavior of groups of people; there are all sorts of ways for making good and useful things. In Beauty there are techniques for manipulating the materials of art.

Corresponding to the theory correction procedure we have this: In Goodness there is a procedure for modifying maxims by comparing the choice implied by the maxims (the counterpart of the prediction) with one's intuitive evaluation of the outcome of that choice (the counterpart of a result). If the maxim implied choice is intuitively evaluated as good, then the maxims are supported. If the maxim implied choice is intuitively evaluated as bad, then the maxims must be modified. In Beauty there is a procedure for modifying principles by comparing the choice implied by the principles with ones intuitive esthetic evaluation of that choice. The principles are then either supported or not supported as the choice is evaluated as beautiful or ugly.

Corresponding to the theory elaboration procedure we have this: In Goodness there are procedures for creating good and useful things. In this procedure the desired outcome corresponds to a proposed theorem that is yet to be proved, and the creative actions correspond to the proof of the theorem. In Beauty there are procedures for creating beautiful things. In this procedure the creative impulse or idea corresponds to the proposed theorem in theory elaboration.

Finally, I would like to close by stating some implications of my paper to the three stated purposes of the conference. More effective teacher education can be achieved by teaching prospective teachers about the cognitive states which they are going to develop in their future students. The nature of these cognitive states and their associated cognitive processes are highly similar in all academic disciplines and hence the teaching techniques that a teacher needs to know are highly similar for all academic disciplines. Thus the techniques learned in each of the content areas that a prospective teacher studies should be coordinated. This suggests that there should be methods coordination courses, if not methods courses themselves, in the teacher education curriculum.

Exploration of the conditions under which effective learning takes place and fundamental research on the learning processes cannot proceed efficiently without adequate theoretical constructs as a guide. The theoretical construct of a concept and its auxiliary constructs may be just the ones that are needed. However, concept will not be a fully established theoretical construct until exact methods of measuring concept attainment have been established. In general, effective learning cannot be studied effectively until learnings are adequately conceptualized and made measurable.

One way of articulating multiple disciplines in the coordinatio of teaching methods and research on teaching is to express the description of the methods and the research on their effectiveness in the common terms of a single theoretical language. I have proposed for this the language of concepts.

FACTORS INFLUENCING EFFECTIVE LEARNING:

THE RELATIONSHIP OF COLLEGE STUDENT CHARACTERISTICS AND METHODS OF TEACHING

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When we direct our attention to the topic of "student characteristics" we are, of course, raising the whole issue of individual differences, and this is a very large issue indeed. While it is true that we do not find the entire range of human diversity in our classrooms, the differences we do encounter pose many serious problems for college teaching. Our concern here at this time is to inspect more closely the relationship between student variability and the effectiveness of various methods of instruction. The assumption behind our concern is that some teaching methods result in more effective learning than do other methods, given a particular personality characteristic. I see as an important part of our task the development of a list of ways our students differ from one another, and then relating these differences to various classroom techniques. It is a formidable task, and looks even more so when we consider the general results of past attempts to relate teaching methods to student variability. For we find that despite strong personal convictions and impressive theoretical arguments regarding the efficacy of one teaching method or another, the actual evidence which unequivocally supports the various claims is depressingly meager.

I do not intend to review here the various published findings which concern the relationship between student characteristics and instructor behaviors. Instead, I feel that our interests at this conference would be better served by focusing upon the causes of the past unsatisfactory results, and then going on to consider some of the actions we might take to increase significantly our knowledge about the relationships involved. More specifically, I would like to present what I feel are two major causes of the failures to obtain clear results regarding the effectiveness of teaching methods. In the first place, there has been an inadequate sampling of the individual differences found among students; only a relatively few of the many important attributes of persons have been studied. Secondly, the research designs and procedures used in too many studies in the past have been inadequate, so that the results are both ambiguous and equivocal. I would like to consider each of these two causes in more detail.

On the existence of student variability there is no doubt. The great differences found in the capacities, motivations, interests, and other attributes of those in our classrooms is a compelling fact of academic life. We may in some instances spend a significant part of our time dealing in one way or another with student variability. And yet, despite the general recognition of the presence and importance of individual differences, we have too little systematic evidence that how an instructor responds to this variability has any appreciable effect upon what students learn.

Why is this, and what can be done about it? An important part of the problem, it seems to me, has been the narrowness in selection of student characteristics. There has been a tendency to limit the investigation of personal traits to what is called academic ability and to a relatively few other measures of personality, thus ignoring a vast number of relevant human characteristics.

When we consider more closely the variable of academic--or more broadly--intellectual ability, which has been much studied, we find only a few studies which can demonstrate a significant relationship between such ability and the effectiveness of different methods of instruction. What little reliable evidence we have suggests that the brighter students thrive better under conditions where they share with the teacher some responsibility for the content and direction of the class activities; whereas, less able students do better and seem to prefer the more teacher-directed class situations. Yet this is not always true, indicating that some other factors need to be considered.

Some of the ambiguity in the findings comes from assuming that intellectual ability is a single dimension and that therefore we can place each person at some point along one continuum. The inadequacy of such a procedure has been proclaimed on many occasions, and still we persist in doing research on teaching using a single, primitive index of academic capacity.

The weakness of using a single measure of ability is accentuated when our concern is students in the California State Colleges. Those in our classrooms are becoming less heterogeneous on some characteristics of academic ability, with most of the students even now falling between the 60th and 90th percentiles of high school graduates. As our State College students become more homogeneous on the characteristic of general academic capacity, it becomes less crucial as a factor of student variability.

I believe that we must discard the use of a single index of intellectual ability and recognize in our research the many facets of intelligence. As one example of a direction we might go, Guilford has suggested that intelligence, or what he calls "the structure of intellect," can be analyzed into at least 90 separate factors, each of which we can consider as a potential source of important individual differences among our students.

One of the variables that Guilford includes in his approach is that of cognition, and it might be useful for us to consider a moment this attribute. We have evidence from many sources that people differ widely in their cognitive abilities. For example, some individuals have rather complex cognitive systems involving many differentiations among objects and events in the world, while other persons have relatively simple cognitive systems; moreover, some people tend to rapidly structure a situation, as if they had a strong intolerance of ambiguity, while other persons more gradually structure their experiences. It would seem reasonable to hold, then, that a student with a cognitive system which is relatively simple and which tends to be organized quickly will learn differently than will a student whose cognitions are more complex and less impelled toward immediate structuring. Will not such individual differences in cognitions have important implications for the method of instruction? It seems to me that they would, and yet we have little evidence which throws light directly upon the relationship between cognitive structuring and instructional techniques. And as we know, cognition is only one of many variables that could be studied in a more careful analysis of intellectual ability. Considering all this, is there any excuse for restricting our study of academic ability to only one or a few measures?

The general picture that emerges in examining the relationship between teaching methods and other attributes of student personality is much like the one found in examining intellectual capacities. We find a few bright spots here and there, but mostly there are only grey and black areas. It might be instructive at this point, to examine a few of the bright areas to see what possible knowledge we might anticipate from future research.

It comes as no surprise to find that students with strong feelings of independence, as well as those with strong needs for achievement, tend to prefer and to perform better under teaching methods that place considerable reliance for learning directly upon the students. On the other hand, dependent, insecure students have a preference for the traditional lecture method over the more informal discussion procedures. And this variation in dependency seems to be independent of our usual measures of intelligence.

A somewhat similar finding emerges out of studies on authoritarianism. Students classified as authoritarians are more likely to do well in classes highly structured and directed by the instructor than in the more permissive classes. Students who score low on authoritarian scales appear to do better in the latter tyoe of situation (i.e., permission situations), although, as with many of the variables, the data are not consistent over all the studies.

Looking even further on this matter of authoritarianism, we find that authoritarian "followers" tend to prefer authoritarian leaders and feel unsatisfied with nonauthoritarian or democratic leaders. The preferences of non-authoritarian "follower" are, of course, reversed. Applying this to the classroom, we should find that students who score high as authoritarians will prefer the authoritarian instructor, regardless of the specific teaching method he uses. This raises an entirely different issue than that of the relationship between the teaching method and student personality. It raises the issue of instructor variability. And, of course, the issue should be raised, for we can no more ignore the differences in instructor personality than we can the differences in student personality. A particular teaching method has little meaning apart from the specific instructor who is using that method. If, for example, we were to compare the effectiveness of two instructors, one of whom is highly enthusiastic about being in a classroom and the other is "bored by the whole business," we would expect the variable of instructor attitude to be far more important than the particular teaching method either used. It seems to me that the factor of instructor variability easily ranks in importance with the variabilities of method and student characteristics. So we should certainly include the instructor as a crucial element in our study of learning in college.

Another issue facing us is that of deciding which teaching method to use when more than one seems appropriate. Suppose we find consistent evidence that a student who is intellectually bright, non-authoritarian, highly motivated to achieve, and with strong feelings of independence can most effectively learn in a permissive, discussion-group situation. Suppose we find, in addition, that another student who is also intellectually bright and motivated to achieve, but authoritarian and with strong feelings of dependence, clearly can learn best in a highly structured lecture situation. What happens when these two are in the same class? Forgetting for a moment the complication of the instructor's personality, which teaching method should be used in this instance? Will it be necessary to make a decision that would help one student at the other's expense? Or are there other alternatives? Can and should teaching methods be alternated or varied in some way to account for the many differences found in students? That this is a complicated matter is suggested by some data I gathered this fall comparing the self-descriptions of students participating in a lecture-discussion class and in small "buzz" groups. The student characteristic under study was that of open-mindedness, as measured by the Rokeach Dogmatism Scale. Preliminary analysis indicates that open-minded students are more likely to give different and appropriate self-descriptions to the two learning situations than are those who score high on the Dogmatism scale. If this is so, then the very process of shifting from one teaching method to another will work more hardships on some students than on others. Perhaps raising this issue at this time is somewhat premature, since it will not be a major problem in college instruction until we have considerably more hard evidence on the differential effects of various teaching procedures. On the other hand, it might be wise for us to build into some research, the possibilities of varying or mixing teaching methods.

Even though a very great deal more could be said about the failure to adequately sample the wide variety of personal attributes important in the learning process, I shall close this part of my paper, and move on to what I feel is the second major cause of our lack of knowledge about learning in the college classroom. I am referring to the inadequate designs, research procedures, and statistical analyses used in past investigations.

Too many studies have used methodology that did not measure up to the task undertaken; some weakness or another in the experimental design or analysis operated in such a way as to destroy the differences that might have been found with more carefully planned and executed research.

One major weakness of past research on college teaching was the failure to isolate the variables under investigation. Even when one variable was selected for study, its effects were not adequately separated from the effects of other variables. Consider a specific example--suppose an investigator wanted to study the relationship between the permissiveness of instruction and the satisfaction among students with high and low intellectual abilities. As noted above, we have some evidence that the brighter student will be happier in the more permissive situation, the less able student happier in the less permissive class. However, suppose that most of the high ability students also are very dependent as persons and the low ability students are independent persons. If, as has been found, independent students tend to prefer the more permissive class and the dependent ones the more structured classes, then the two personal characteristics of high intelligence and high dependency within the same individuals will tend to offset one another, so that the analysis will reveal no differences in the effects of permissive and non-permissive classes. The issue is clear and unmistakable: we need to design our studies in such a way that the effects of each variable involved can be measured separately. That is, we need to do more than just identify the many student characteristics important in the learning process, we need also to separate out their various effects through maintaining proper controls in our study of them. There is a very definite need for multivariate designs and analyses. In problems as complex as the ones we are concerned with here--involving as they do variations in teaching method, instructor behavior, and student variability--no simple design is adequate to deal with all the interrelationships operating.

Another problem with many past studies is that adequate controls were not maintained in vital parts of the procedures, so that even when differences were found in comparing two methods the major cause for the differences could not be identified with certainty. Many studies included what was called a "control" group; however, in case after case no meaningful controls were really established. Some enterprising teacher might try out a new method of instruction and for "evaluation" compare it with some other group whose only clear characteristic was that it was not taught by the "new" method. The result from such a design are subject to a great many explanations, such as differences in student sampling, differences in instructor motivitation, the enthusiasm of an innovation and so on. Some of these confounding factors would tend to lose their force over a period of time and replication; however, in many instances a study such as described here would be conducted for only a single semester, so that the stability of the findings could not be checked.

Another weakness of past studies was the inadequate quality of their statistical analysis. Of course, few of the studies warranted very complex analysis, but some that did were not given it. Instead, tests of relatively low power were applied and differences that might have been significant under proper analysis did not show up.

There is no value in a review of these past shortcomings unless we use it as a warning to ourselves not to do the same things in our own research. In a way, shortcomings of the past are understandable. Many of those who did the work had to depend entirely upon their own training and ingenuity to design and carry out the experiments. They did not have available appropriate designs and analytical procedures. Today, we can make no such excuse, because developments in methodology have reached a sophistication considerably beyond their present general applications. And what is more, they are readily available. We are fortunate, in fact, to have in a single book enough material on the problems, designs, and analysis of research in this field to keep us busy for at least a decade. I am referring to the Handbook of Research on Teaching, edited by N. L. Gage and sponsored by the American Educational Research Association. Developments in statistics now make it possible to handle meaningfully the great complexity of interacting variables which must be analyzed in the most complex designs. We may have reasons for not conducting research on learning in the state colleges, but the claim that we lack tools for doing it cannot be one of them.

Let me summarize now what I have said. I have maintained that we have little systematic knowledge about the relationship between various student characteristics and the effectiveness of different teaching methods. One major cause for this is that we have not adequately identified and sampled the many aspects of individual difference important in the classroom. To overcome this deficiency, we need to study systematically the factors of personality which seem most relevant to learning in the colleges. A second major cause for our limited knowledge is the methodological weaknesses found in so many of the past studies. To correct this, we need but to incorporate in our own studies the great advances made in designs and analysis that are now available to us.

I realize that I have given little attention to certain elements, such as the instructor's personality, that are vital for a full look at the problem. Also, I have rather completely ignored other relevant issues, such as the variety and development of the teaching methods themselves. But I am confident that the issues I have neglected will receive a proper hearing during the course of this conference.

I would like to say a few concluding remarks about any research program undertaken to investigate the problems of college teaching. First of all, such a program requires and deserves financial support going into millions of dollars if there is to be a significant increase in our present knowledge. No piecemeal approach can handle in a meaningful way the enormously complex sets of variables involved. There is need for a large-scale, coordinated program of research which systematically examines the many facets of the problem.

There should be a place also for the individual research project. Specifically, I would recommend that money be made available to faculties of the separate State Colleges for studies on individual but relevant topics, such as the development of a new method of teaching. I think it is important that we have both the large-scale coordinated program and the small individual projects.

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SUBJECT-MATTER DETERMINES METHOD

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Among the various party lines that divide the American intellectual community, the split between "subject-matter" and "methods" people in education has long been one of the most tedious and unproductive. Especially in the humanities, communication between the two factions has long been fitful and just barely polite. Only recently has there been a growing realization that some of our most important professional responsibilities, such as teacher training, cannot be adequately performed until subject-matter and methods teachers learn to hang together.

What accounts for the original split can be easily seen, though perhaps less easily cured. The typical college teacher in one of the traditional academic disciplines is himself likely to have had a college experience where emphasis was on "covering the material." His professional career is likely to be hitched to the star of "research"; the ultimate test of his professional respectability is "publication"--his ability to discuss his specialty, not with his students, but with an often minuscule number of his "intellectual peers." He is likely to assert that great teaching is not possible without vital scholarship--without specifying too closely what makes scholarship vital or whether such scholarship is a sufficient or merely a contingent cause.

In the typical community of academicians there is a polite assumption that everyone will develop a teaching style to suit his personality. Discussions about teaching are likely to be cut short with the announcement that "teaching is an art." _Art_ here apparently does not mean what the term meant to such Renaissance humanists as Castiglione, Sidney, and Ben Jonson: man's attempt to improve on nature; the exercise of skill that becomes _second_ nature through constant study and practice; the channeling and developing of man's creative abilities through forethought, frequent reconsideration, and the steady exercise of "judgment." Rather, art here means something more reassuringly and flatteringly Romantic: the idea that, in the natural talent, capacity will flower forth more or less spontaneously, growing organically like the lilies in the field. In practice, this attitude leads to a familiar result: almost exclusive preoccupation with a teacher's knowledge of his academic specialty, with no systematic attempt to nurture teaching ability or to understand its ingredients.

At the opposite extreme, we encounter the educational psychologist, starting from radically different premises, and proceeding along an entirely different tangent. The kind of educational psychologist that the subject-matter specialist is most likely to encounter brings to the problem of how to teach such large question-begging abstractions as "the learning process." Seldom do these abstractions have the appearance of having been built up empirically and inductively. In other words, the English teacher is seldom told: This is a common element I have discovered in what goes on in a class in transformational grammar, in a seminar in eighteenth-century poetry, and in a class in driver education. Rather, the teacher often has the uncomfortable feeling that educational principles are brought to his subject-matter ready-made, from the outside. Sometimes these principles have the abruptness of dogma, as in the behaviorist's commandment: Thou shalt condition overt, measurable behavior. Sometimes they seem to be based on observations far removed from the teacher's own tasks. There may be a lesson, for the student struggling to write an honest sentence, in the behavior of the laboratory pigeon trying to earn its keep. And again there may not be.

In practice, the person whose function it is to advise the teacher on how to teach often does not understand and respect sufficiently the special problems, the traditional commitments, and the inherent configurations of the teacher's academic discipline. There are still people, and books, purporting to help train English teachers, who dismiss with a few snide remarks the last two centuries of linguistic scholarship. As this body of scholarship is making its influence felt on the teaching of English in school and college, it is putting many questions about motivation, sequence, and approach in a completely new light. Other academic subjects are undergoing similar revolutionary changes. Teachers caught up in these changes will look for experts in methods who can address themselves confidently to the specific problems of the new curricula.

It is here in fact that the interests of the subject-matter specialist and of the expert in educational method inevitably meet. In the years ahead, what will be urgently needed in such areas as English, physics, or mathematics are people who combine a strong interest in academic scholarship with a strong commitment to *teaching*--representatives of a type whose virtues are often celebrated but whose survival, let alone increase, little is done to encourage. One specific question that such people must address themselves to is to what extent *subject-matter determines method*. What are basic considerations concerning approach, sequence, motivation, and measurement, *inherent in the nature and structure of the specific subject-matter*, that the curriculum builder or the textbook author ignores at his peril? How must basic assumptions about method vary even *within* a major discipline, as the English teacher, for instance, deals with such fundamentally different areas as spelling, grammar, usage, semantics, expository writing, creative writing, and the study of imaginative literature?

To illustrate the kind of inquiry here possible, I should like to use a few concrete examples from the reorganization of the English curriculum that is taking place as the "New English" slowly makes its way into the classrooms of school and college. One basic decision that every English teacher must make is whether to teach various language skills in combination, or whether to concentrate more or less on one at a time. For instance, should he prepare a solid sequence of thirty lessons in "straight" grammar? Or should he take up grammatical problems "as they come up in the student's writing"? Or should he integrate attention to grammar with the reading and interpretation of literature? In the recent past, people in English education or in English methods have often decided this question in favor of the integrated program. For the high schools, for instance, many have recommended a "unit"-approach whose focus of interest is in a central theme, such as "Back-Country America" or "Communication in Our Town." Various kinds of language skills are then "brought in" during the course of unit. Language is thus being used with a purpose. In the words of the secondary school bible of the National Council of Teachers of English, "the day is past when English programs were organized with one term of writing, one term of literature, and one term of speech." Through the unit method of teaching, which "recognizes the relatedness of all the language skills and literature," students "have opportunity for practicing many forms of speech and writing with direct attention to these skills as the need arises." (*The English Language Arts in the Secondary School*, New York 1956, pp. 68-70.)

As materials from applied English linguistics increasingly find their way into the classroom, some drastic rethinking of the assumptions behind the integrated approach is becoming necessary. In the first place, linguists have long objected to the teacher's tendency to blur the distinctions between such different objects of language study as grammar, usage, and meaning. Grammar deals with the structure of language; it tells us, for instance, that "the boy lovable Russian young astronaut" is not grammatically possible, but that "the lovable young Russian boy astronaut" is. Usage deals with the appropriateness and acceptability of roughly alternative ways of saying the same thing; it tells us what a prospective employer might think if during the interview we say, "Ain't that the truth." The linguist is likely to complain that by always rushing headlong into questions of usage, with its immediate practical application, the teacher gives the student a badly lopsided view of what language actually is and how is actually works. The remedy he prescribes is predictably that we should separate the study of grammar and usage and, particularly, study the former as a subject in its own right.

Furthermore, by the study of grammar in its own right the linguist does not mean an occasional class hour set aside for the discussion of "grammatical problems." He means the sustained, systematic, cumulative study without which the study of grammar--like the study of mathematics, for instance--remains mere misleading dabbling. Though linguists disagree on many things, they agree that first and last language is a system. The student needs to acquire a feeling for how--step by step, and by quite "regular" but increasingly complex operations-- a mature sophisticated sentence is constructed from a few simple building blocks. If he is to convey this feeling to the student, the teacher himself must have a firm understanding of what is elementary and what is more complex, what is typical and what is a variation. He must realize that before he can meaningfully discuss a participle used to modify a noun, as in "the dancing leaves," he must have built up some understanding of such modifiers as adjectives and of the normal role of dance when used as a verb. Often he will find that something he decided to skip during the early stages of instruction will come back to haunt him when he needs it to help him explain a more complex item.

Such systematic, cumulative instruction can tap a source of motivation often denied to an integrated approach: As relationships become clear, as the major outlines of a subject emerge, the student can begin to say to himself: "Ah! Now I see. Before, all this seemed always miscellaneous, confusing, one thing after another. But now it begins to hang together. It is beginning to make sense." One of the most basic human motives--shared by scientists, artists, dogmatists, authoritarians, and the majority of American voters-- is to find the simple pattern underlying the bewildering flow of experience. One thing that modern linguistics encourages the teacher to do is to mobilize the rage for order, the search for the pattern, in the study of language.

The aim of instruction in grammar, according to the linguists, is to give the student at least an elementary grasp of the intricate workings of his own language. As he can be made to grasp the structure of a sentence like--The peppery young lady from Vermont who had been denied admission wrote a letter to the dean telling him what she thought of his ---- ---- ---- school. However, such a sentence is a finely attuned mechanism of intermeshing parts. The kind of trained perception that can take in the structure of this sentence as a whole does not result from bits and snatches of grammatical instruction improvised by a teacher in a unit focused on non-grammatical concerns. The kind of student who can analyze this sentence is the one who has systematically studied the role of such basic grammatical devices as word order, word forms, and function words; the various basic sentence skeletons; the various possible layers of modification and subordination; the possibilities of substitution.

Several influences are now at work to help make such a program a study a truly cumulative sequence rather than a mere miscellaneous inventory. First, the transformational grammarians, led by such men as Noam Chomsky and R. B. Lees, have strongly attacked any lingering notion that the grammarian is a mere registrar of often unrelated linguistic facts. To them, the heart of grammatical study is the account of the successive "transformations" by which complex structures are generated from a small inventory of simple ones. Such successive transformations must be applied in a rigidly predetermined order if they are to produce the right results. Obviously, there are possible implications here for the classroom teacher trying to decide what elements in the study of grammar "logically" precede other elements. For instance, let us assume that we want a student to be able to turn a simple statement in the active voice, such as "the man felled the tree," into a question in the passive voice. Obviously it would be a mistake to turn it into a question first, since we would get

"Did the man fell the tree?" This did would have to be gotten rid of again, since the desired final result is "Was the tree felled by the man?" The most direct route to this result would be to turn the statement into a passive statement first: "The tree was felled by the man." To get the question, we would then simply reverse the order of the auxiliary and the subject. Elsewhere, in the study of modifiers, treatment of the passive is needed before the use of the past participle as a modifier can be made clear (as in "the felled tree"). This repeated "transformational" priority of the passive might decide the teacher to treat the passive as something relatively basic and elementary in his total treatment of grammar.

A second current influence, reinforcing the grammar teacher's concern with the systematic building up of relationships, is programmed instruction. Here we have a case where a specific teaching technique, inspired by developments in learning theory, in important ways parallels and reinforces considerations derived from the scholarly re-examination of a given subject-matter. Since programmed teaching aims at making the student learn by making him take one limited step at a time, it shows up more drastically than any other technique the gaps, the non-sequiturs, the missing premises, in much conventional instruction. The teacher who studies the problems encountered by the programmer (and solved by the good one) can learn a lesson that should be mastered by every textbook author who submits a manuscript to a publisher. That lesson is concerned with how to build a foundation, and how to build on that foundation patiently and systematically--rather than to plant a solid roof firmly in mid-air.

In the teaching of grammar, to sum up, the most immediate present problem of teacher and textbook author is to develop a method that is in accord with the structure of his subject-matter. As the English teacher moves on to the problem of usage, he finds that his central problem is one of strategy in shaping the student's attitudes. For many decades, teaching usage meant giving "firm" instructions on how to split various kinds of hairs, making "authoritative" pronouncements based on mere unexamined hearsay, and heaping scorn on people who used the English language the way they had learned it at their mother's knee. It often meant red-pencilling the student's compositions for "errors," real and imaginary. It meant an obsessive overemphasis on minor and debatable points of linguistic etiquette, with an often disastrous neglect of one of the English teacher's most crucial tasks--to develop the student's fluency, vigor, resourcefulness, honesty, and responsibility in speech and writing. The teacher who tries to fight this tradition faces formidable opposition. The fashionable oracles of pseudo-sophistication continue to dominate the pages of periodicals whose editors should know better. Crudely unscholarly discussions of usage are given prominent space in a journal that uses the term *scholar* as part of its title; crudely uneducational attacks on modern students of usage appear with tiresome regularity in a review that prides itself on its interest in education. Firmly entrenched traditional textbooks in high school and college, though increasingly assuming a protective liberal coloration, continue to miseducate thousands of young Americans.

What is the teacher of usage to do? What methods is he to follow in the classroom? He will soon find it utterly futile to inveigh dogmatically against dogma, to pit his own authoritarian say-so against the say-so of other self-styled authorities. He will soon learn to save his spluttering anger and frustration for a talk at a professional conference or an article in a professional journal. He is likely to choose an approach that stresses heavily the student's own *personal* observation, his own exploration of his linguistic environment, and of his linguistic heritage. Let us assume the question arises whether "the reason is *because*" is "correct," or whether it should not be "the reason is *that*" instead. Much more effective than any argument will be a look at a famous sentence:

> The practical *reason why*, when the power is once in the hands of the people, a majority are permitted, and for a long period continue, to rule is not *because* they are most likely to be in the right, nor *because* this seems fairest to the minority, but *because* they are physically the strongest.

This sentence was not written by a man using "the speech forms of the lower classes," or "untrained to perceive accurate logical distinctions," or, for the moment, forgetful of "the rules of grammar." It was written by Henry David Thoreau, one of the great masters and "sentence-builders" of American prose; and it employs the expression "the reason is because" because it is vigorous, idiomatic, literate American English.

In practice, this approach means that the study of usage will be *un*systematic when compared, say, with the teaching of grammar. There will be much study of actual passages *for what they will yield*. In an area that used to be dominated by subjective preference and ulterior motives, it is salutary to cultivate the kind of objectivity that involves a willingness to find out, to follow one's information to where it will lead.

Where grammar deals with basic recurrent relations, usage deals with often unrelated items that for one reason or another have acquired social or stylistic significance. This does not mean that instruction in usage will be completely unstructured. It merely means that sequence (for instance from nonstandard through informal to formal usage) is less crucial than the spirit in which inquiry is conducted. Once the student becomes convinced that he must develop his ear for stylistic nuance, many of his everyday encounters with language can contribute to his growing linguistic sophistication.

Not only will the teacher's treatment of usage be less rigorously systematic than his treatment of grammar, it will also be less independent and self-contained, being more clearly the kind of thing that should be taught in conjunction with something else, something that puts it in its true perspective. The English teacher must convince his students (and the public) that he has more important things to worry about than the use of like as a conjunction. In dealing with a piece of writing, his first interest is in its substance and structure and strategy, the way it reveals the purposes and the personality of the writer. Discussion, say, of slang terms used by a writer is meaningful only when they are seen in the context of his intentions, his general sophistication, his audience. If his use of like as a conjunction is discussed at all, it should be discussed by way of a footnote to something that really matters. This kind of de-emphasis of usage has obvious implications for the teacher's standards and procedures of evaluation. It rules out theme-grading standards that make the teacher fail in substantial, honest, and vigorously written paper because of a sentence fragment. It rules out reliance on tests that equate "effective English" with a conservative use of who and whom.

It could be shown that in each major area of English the substance and the method of instruction are similarly interrelated. For a last illustration, I should like to turn to the teaching of literary history. This is a subject-matter that strikes the beholder first of all by its tremendous bulk and formlessness. Not only is the extent of the primary sources staggering, but the variety of approach and interest in the secondary scholarship is truly enormous. By the time the future high school or college English teacher leaves graduate school, he has typically accumulated a dumbfounding array of facts, terms, and theories: biographical and bibliographical, textual and critical, historical and anecdotal, philosophical and belletristic, classical and Romantic, Freudian and Jungian, and you-name-it-we've-got-it.

The person interested in the effective teaching of literary history is likely to ask: What standards of relevance and significance apply in this area? What patterns of organization are appropriate? The answers implied in conventional practice are familiar: A line of inquiry is relevant if a tenured professor is giving his valuable time to it; a finding is significant if it achieves publication in a scholarly journal. The appropriate organization is to divide the material chronologically into segments of half a century or more, in short, into "period" courses. Whatever the convenience of this prevailing system it has one familiar defect: The student at the end may know a great deal but understand relatively little of it. The fragmentation and specialization encouraged by the period-course pattern interferes with a full grasp of the larger relations, the recurrent problems, the basic dilemmas of literary history; it keeps the various parts of the student's literary studies from illuminating each other. Like their teachers, such students too often are deficient in their sense of "the presence of the past"; they find it hard to put into practice the requirement that literary scholarship should distinguish itself "from antiquarianism by insisting upon critical evaluation of things recovered, and seeing present relevance in them." (George Winchester Stone, Jr., PMLA LXXIII, December 1958, Part 2, 82-83.)

Many of the patterns of continuity, reaction and counter-reaction, similarity and contrast, that are most revealing to the student cut across the arbitrary limits of the period course. What is needed is a method that will supplement the conventional, segmented historical approach, that will provide a catalyst for the knowledge the student has acquired. Such a method would combine features of a number of available alternatives. First, the teacher would take his clue from some of the familiar studies of great literary themes, such as Arthur O. Lovejoy's study of the theme of cosmic order in The Great Chain of Being, or C. S. Lewis' study of the convention of courtly love in The Allegory in Love. To understand the role of woman in an Ibsen play, or the function of Chaucer's Pandar, or Lady Chatterley's relationship with her lover, or the ironies in the love poems of Donne, or the elaborate games Shakespeare's comic heroines play with their suitors, the student needs some understanding of the tradition of Romantic love that C. S. Lewis traced from eleventh-century France to Renaissance England, and that profoundly conditions the nature of our social mores to this day. It is hard to see, for instance, how one could meaningfully discuss the taciturnity about love of a Hemingway hero unless one is prepared to relate it to his revolt against the need to repeat yet once more the hyperbolical phrases first taught our civilization by the Provencal poets.

Another such inter-period and cross-period approach is that of "comparative" studies in literature. Typically establishing relations between works from two major Western literatures, they can again help the teacher focus on crucial recurrent themes. Further they help us take the discussion of form and style out of a narrowly parochial context, making us compare, for instance, the role of the grotesque in Dickens and in Kafka, or the forms of the Romantic lyric in England and France.

The third major approach that cuts across rigid chronological barriers is the "synoptic" approach encouraged by various developments in contemporary literary theory. Modern critics from Kenneth Burke to Northrop Frye have assumed that literature is concerned with certain recurrent concerns, that it deals with them through certain recurrent modes. A study of _Oedipus Rex_ sheds light not only on a particular literary culture but also helps to show what literature is and does _per se_. Though it is revealing to study Chaucer in close conjunction with his immediate contemporaries, it is even more revealing to compare his handling of the comic mode with the way it is handled by Fielding, for centuries later. Sir Thomas Browne's _Religio Medici_ is a great seventeenth-century document, but the logic of any _formal_ study of literature requires that it be somehow or somewhere brought in conjunction with a work like Cardinal Newman's nineteenth-century _Apologia Pro Vita Sua_. Such familiar cruxes of literary criticism as the definition of classic and Romantic, of tragic and tragicomic and melodramatic, of "realism" and "imagination," can be handled best in a course that, while preserving a strong historical perspective, studies literary history along non-segmented lines.

The point of all this is that in the area of literary history the inherent logic of the subject-matter strongly suggests a modification in the sequence of courses taken by most of our future teachers of English. There is apparently a strong argument for some kind of a capstone course of the synoptic variety, helping the student to formulate, however tentatively, the kind of rationale that can give to his knowledge of literary history coherence and significance. The student following the conventional program usually knows a great deal about literature, but he tends to be woefully inarticulate on what literature is all about. He shows a discouraging lack of critical self-reliance when confronted with a disturbing new work of literature not yet labeled and classified by the critical establishment. He tends to shun exposure to the rigors of the great primary texts, taking refuge among the secondary sources.

To return to our original theme: In English, at any rate, discussion of the aims and methods of instruction must be closely correlated with our examination of the nature of subject-matter. Only an approach that successfully integrates study of the what and the how has a chance of appearing relevant to the practicing classroom teacher. Our final question then is how work in this direction can be encouraged. It seems to me that the answer lies in support for work that lies just about in the middle between the two familiar extremes: the kind of fragmented or specialized subject-matter reserach whose relevance to teaching is politely assumed rather than rigorously insisted upon; and the kind of conventional educational research that in "the actual learning situation" behavioristically tests hypotheses whose importance and relevance is dubious to the subject-matter specialist. What is missing between these two extremes is research into the structure of a discipline, exploring it as a body of knowledge, traditions, procedures, and attitudes to be taught. The central question in this kind of inquiry is: "What, in the present state of my discipline, am I trying to teach?" The investigator would aim to discover in the teacher's subject-matter the underlying principles, the inherent relations, that make it at once teachable and worth teaching. The astonishing success and influence of Jerome S. Bruner's The Process of Education shows that people in a variety of fields are ready to respond to calls for such a program.

To indicate more concretely what projects might be included, let me give a few examples from my own major field. In language studies, the sheer pressure of new developments is creating a need for studies that will do for today, and in a more probing and systematic way, what Robert C. Pooley did some years ago in Teaching English Usage and Teaching English Grammar. The steadily growing interest in composition, and the growing volume of discussion and research about a "new rhetoric," could provide the substance for a study modeled on Albert R. Kitzhaber's Themes, Theories, and Therapy, subtitled "The

Teaching of Writing in College." In literary studies, the vogue of Northrop Frye's Anatomy of Criticism should encourage studies of literary history that are "anatomical" and thematic and synoptic rather than miscellaneous and anecdotal. Such studies would do more than take inventory of content to be covered; they would imply a strategy, a perspective, a method.

Someone who wants to improve instruction in school or college must find things to say that the classroom teacher finds relevant. This is the kind of argument that, as some said, is as unanswerable as decapitation. One way of enlisting the teacher's interest is to provide him with material that sharpens his understanding of his subject-matter while at the same time illuminating his resources and responsibilities as a teacher.

SOME PROMISED DEVELOPMENTS IN CURRICULUM ORGANIZATION AND METHODS FOR EFFECTIVE LEARNING

Kenneth A. Martyn
Professor of Special Education
California State College at Los Angeles

When Professor Towner asked me to prepare this paper we agreed that I would focus on two aspects of teacher education; education for teaching gifted children, and education for the advancement of the culturally handicapped, as these are the areas of my own specialization and study. Two facets of these programs appeared particularly relevant for this conference: (1) independent study, research, and laboratory experience; and (2) team teaching, as promising developments in curriculum organization and methods for effective learning.

It was Jacque Barzun in The Teacher In America who wrote, "Education is indeed the dullest of subjects and I intend to say as little about it as I can." He wrote further,

> The business of the parent and the teacher is not education but Teaching. Teaching is something that can be provided for, changed, or stopped. It is good or bad, brilliant or stupid, plentiful or scarce....
>
> No man says of another: 'I educated him.' It would be offensive and would suggest that the victim was only a puppet when first taken in hand. But it is a proud thing to say 'I taught him.'

In our State Colleges we have spent hundreds of thousands of man-hours representing many millions of dollars on curricular development. We have departmental curriculum committees, divisional curriculum committees, school and all-college curriculum committees. We seem constantly to be making curriculum organization proposals, course proposals, and, in recent years, numerous master curriculum plans.

Under the title of "Master Curriculum Plans," we have made contributions to scholarship and academic excellence at least three times in the past four years; each time to project our master curriculum for five to ten years on each campus. In one way or another, the study of curriculum, the reorganization of courses, of units, and the paraphernalia of education, is going on in every college and university in the country. We are not alone. Course proposals are being made, curriculum committees are meeting, general education committees are studying--week after week and hour after hour throughout the country. This is not a new or recent development in higher education.

Barzun wrote in 1953, after visiting colleges and universities of every type, "Under every meridian on this continent I have been privileged to attend meetings of the curriculum committee which was, it seemed, sitting continuously from coast to coast."

I recall most vividly an episode in our own campus curriculum committee several years ago. A new member of the faculty had completed reading and studying a series of proposals for new courses and new curricula. He suggested, only half in jest, that perhaps what we should do is offer courses entitled: Professor Smith I, Professor Smith II, Professor Adams I, or Professor James III. He was attempting to show that, in effect, the course is what the teacher makes it, not only insofar as methods are concerned, but also insofar as curricular organization and content is concerned. What the course outline or catalog, or master curriculum plan, or curriculum committee says of a course is frequently only accidentally related in fact to what the course becomes under the direction of an able teacher. This may be a more extreme than accurate view of curriculum organization and developments on our various campuses, but I believe that it does illustrate the importance of keeping central, in any investigation, study, or research for effective learning and higher education, the role of the teacher. Teaching still is much more an art than a science. With this as our main assumption we can examine and apply more appropriately some of the promising developments in curricular organization and methods for effective learning.

The two developments that this paper illustrates are: (1) independent study and research with laboratory experience, and (2) team teaching. It seems to me that there are some implications from these two methods for research, investigation, and demonstration by the California State College System.

What are the implications of team teaching; for example, for a new attempt at improved general education programs? Most of the attempts to improve general education have faltered or made evident their greatest weakness in the lack of appropriately educated teachers. The teacher who concentrates on keeping his education broad enough to meet the scope, the broad sweep of the curriculum required in general education, seems most often to lose his position within his discipline. From this, too often his position of intellectual prestige among his fellow faculty members is reduced and, ultimately, this affects the curriculum in general education and the action of college faculty members. These, in turn, gradually change the "promising new general education program" to a standard combination of introductory courses that simply fulfill the unit requirements of the State Code.

Notwithstanding the attempts by administrators to organize new divisions or general schools or basic colleges, inevitably the faculty of these specialized general education programs become labeled. Most of them are eventually considered second-raters by the members of the traditional academic disciplines.

Much of this personnel weakness of the general education programs is the result of the practical impossibility for a single faculty member to maintain himself as knowledgeable, as concerned with the advancement of reliable knowledge, as a person effective in working at the penumbra of knowledge in his own discipline, while he trys to keep up to date in several other related but equally advancing disciplines. Practical experience indicates that for the vast majority of teachers maintaining a position of respect in scholarship and research in one field is the maximum that can be effectively expected. True, there are some outstanding exceptions, but these minimum affect an exceedingly smaller proportion of the students enrolled in general education courses and curriculum in higher education today.

It is possible that we might overcome this disadvantage by using several teachers, each working in his own discipline, maintaining his own research and scholarship in that field by cooperating in the presentation of this to students. This could be done by the use of team teaching for assignments in general education. Certainly, it is worth more investigation.

Independent study, research, and laboratory experience are also developments in curriculum organization or method that seem promising for improved or more effective learning in higher education. A major hindrance to the improvement of education of gifted students is the long period of study they must undergo before they are allowed the excitement, the motivation, the stimulation of independent creative work. Studies by Herbert Lehman and Sidney Pressey and others have shown that in most fields the most effective contributions are made by scholars or artists while they are in their younger years. Frequently, the forced feeding lecture-study-paper-lecture-study-essay organization of the curriculum and method of teaching is more of a hindrance than a help to development of the really superior mind. Some of the first-rate colleges and universities in this country are now providing for and encouraging more undergraduate independent study, research, and laboratory experience. Somehow, we might try to break down or state formulas, rules, staff formulas, etc., and experiment with this extensively in our State College System.

One model use of both team teaching and independent study is Monteith College, Wayne State University. This college was developed under a $7 million grant from the Ford Foundation several years ago, and would certainly be worth concentrated study by our State College System.

One of our major concerns in the State Colleges is the training of teachers. It is possible to apply each of these methods to at least some specialized aspects of teacher training for we are doing it at this time at California State College at Los Angeles in a special program. Sponsored by a grant from the President's Commission on Juvenile Delinquency, we have a program for "Teacher Education For The Advancement of The Culturally Handicapped." Two aspects of this program have increased its effectiveness. The first has been the cooperative research and teaching of faculty members from anthropology, sociology, psychology, and education; and second, the use of schools in the target area of Los Angeles that have been labeled "culturally handicapped" as a laboratory. Not only the student teaching, but the methods courses and the foundations courses are taught by college faculty members in the school setting, with demonstrations and laboratory experience for the students in the elementary and secondary classrooms.

A second specialized program is that developed for teachers of gifted children. A team of three and sometimes four teachers, each observing the other and sharing in the comments, questions, and criticisms of the others, works in a laboratory classroom teaching gifted children. Each is able to carry on independent study projects related to the laboratory experience.

To summarize, perhaps these questions would be the most appropriate for further study of some promising developments in curriculum organization and methods for effective learning in the California State Colleges: (1) What are the implications of team teaching for improving general education programs? (2) What are the possibilities for expanding opportunities for independent study and individual student research in the organization of the curriculum of the California State Colleges? (3) What new attempts can be made to illicit effective interdisciplinary cooperation in curriculum building? (4) How can we improve our own teaching? Could we spend even one-half the time we now spend on curriculum proposals, conversions in master plans on evaluating, criticizing, examining the effectiveness of our teaching? Can we experiment with ways to help new faculty members with preparation for their teaching, particularly increased time for this? What new attempts can we make to get the older and most experienced members of the faculty to get excited and informed about new content, research, and extension of knowledge in their disciplines?

Perhaps, Louis Auchincloss gives us the best advice when he had Dr. Prescott, THE RECTOR OF JUSTIN, say:

> The older I get the more I realize that the only thing a teacher has to go on is that rare spark in a boy's eye. And when you see THAT, Brian, you're an ass if you worry where it comes from. Whether it's an ode of Horace or an Icelandic sage or something that goes bang in a laboratory.

REPORTS OF DISCUSSION GROUPS

THE GREAT SEAL OF THE CALIFORNIA STATE COLLEGES
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DISCUSSION GROUP I

THE CRITERIA OF EFFECTIVE LEARNING

Cletus J. Burke, Discussion Leader
California State College at Hayward

David J. Hicks, Recorder
Chico State College

Introductions and some procedural decisions were the first order of business for the group. Following this the group discussed and attempted to clarify the objectives of the conference. During this discussion the following concerns were expressed by various members of the group:

1. that full-faculty rather than delegated-faculty participation is necessary in order to mobilize the research potential of the system;
2. that further conferences be actively considered;
3. that some means be found to coordinate research between the various campuses in order to avoid duplication and increase system-wide communication;
4. that the establishment of local research centers be explored;
5. that a state-wide research committee be considered.

A general discussion of the probability and desirability of a state-wide coordinated research effort followed with a general conclusion that unless something is done to promote and reward research in the State Colleges, faculty dissatisfaction and loss will markedly increase. Among the ideas expressed were state-wide listings of research activity and single discipline state-wide conferences.

On Saturday, the discussion began with an attempt to redefine and amplify some aspects of Dr. Hanson's paper which had been delivered to the general conference on Friday. The following points from Dr. Hanson's paper were summarized:

1. if learning is to be studied then assessment of the results of learning must be possible i.e., observable;
2. techniques for assessment must be devised;
3. there must be a unifying theory in order to have comparability and meaningfulness of results.

With these points in mind the following questions were raised:

1. Can procedures be found in which members of various disciplines can find and use a common language?
2. Are the methods of learning used content-free?

The discussion of the questions brought forth the idea that the objectives of the learning process can precede technical concerns about the learning process, but that a philosophy of learning cannot proceed without a view as to how assessment will be made. There was strong feeling that an integration of learning in different disciplines cannot be accomplished due to a lack of common training and interest and that the validity of the dependent variables used in the assessment of learning was not possible nor necessary at this conference.

The group redirected its discussion to what goals and objectives can be stated for the entire college system. The need to discuss the educational philosophies and procedures on each campus was stressed. It was deemed desirable to discover what can be done to work or act as a system in order to utilize the resources of the entire system in answering some of the questions in the area of learning in higher education.

It was moved that the objectives contained in the address by Professor E. V. Pullias be accepted as commendable and therefore worthy of continued discussion and debate by members of the California State College System. Also that we address ourselves to ways in which we as a system can coordinate, mobilize and articulate our efforts to implement the objectives he outlined to the meeting of the general conference. This motion was passed unanimously.

A discussion of possible means of coordinating, mobilizing and articulating the efforts of the entire college system brought forth the following suggestions and points:

1. that college "image" studies might show what needs to be accomplished and what we are up against both in the local community and throughout the state;
2. a clearinghouse for research could be established on each campus and state-wide with basic precis as the most feasible form of communication;
3. that the Chancellor's Office might state the substantive matters involved in the conference and send this statement to all the campuses in order to stimulate research;
4. that funds be sought to support travel and discussions for faculty within the system whose research interest and efforts are related;

5. due to the variation in local support for research that provocative action be taken to promote local groups concerned with research;

6. that the Chancellor's Office explore the establishment of a system-wide institute for inter-disciplinary research on as broad a base as possible, but with a view to the three objectives established for this conference;

7. that any system-wide research effort should be conducted in line with the purposes of the California State Colleges.

In the course of the above discussion the following motion was presented:

The Chancellor's Office is invited to prepare a brief statement of the objectives and areas of interest intended for the present conference, and to send this statement to each college president and chairman of the local academic senate or faculty council. It should be requested that a report of the local interest and activity in research and possible means of implementing local and system-wide research related to the objectives of this conference be made and that the results of such requests be distributed by the Chancellor's Office back to the college presidents and chairmen of the local academic senates and faculty councils.

This motion was passed unanimously.

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DISCUSSION GROUP II

THE RELATIONSHIP OF STUDENT VARIABILITY AND METHODS OF TEACHING

Henry A. Bamman, Discussion Leader and Recorder
Sacramento State College

The group recognizes the complex nature of our State Colleges; we realize that the inter- and intra-variability among colleges and student bodies presents problems that cannot be resolved by simple resolutions. As a summary of our discussions, we have listed these immediate concerns:

1. We need to know what information is now available concerning the variability among our students:
   - a. attitudes toward higher education;
   - b. personality factors;
   - c. motives for learning;
   - d. goals and aspirations, particularly in terms of the self-image of where the student is and hopes to be;
   - e. effect on the students of the culture of the individual college.
2. We need to isolate those relevant and critical factors:
   - a. stated in such a way that they are understandable to anyone who is concerned;
   - b. usable by the faculty members who want to apply this information to working more effectively with individuals in their classes.
3. We feel it is important to develop means by which we may identify and study outstanding teachers:
   - a. identification of the unique characteristics that they may possess;
   - b. understanding of the approaches that they use in teaching.

   We suggest a longitudinal study of students who have been influenced by these teachers. We need to study the effectiveness of these students in terms of their vocational emphases and in terms of their effectiveness as persons and citizens.

4. We believe that outstanding students should be studied:

   a. identification of their unique characteristics;
   b. their own reports of factors in the teaching-learning situation that influenced them most.

A study of variability should be both short- and long-range:

   a. As a short-term project, identify the variables that we now recognize and communicate these to the faculties.

   b. As a long-term project:

      (1) Refine the information that we now have
      (2) Examine the instruments that we are now using to identify variables
      (3) Develop new instruments

RECOMMENDATIONS: Group II presented the following recommendations:

That machinery be established to coordinate state-wide efforts in research and development

(a) at each institution

(b) at the level of a state-wide coordinating body or center

We believe that coordination should come from the individual faculties.

That any research undertaken be designed to be useful to higher education in all types of institutions

That individual approaches to research be encouraged.

DISCUSSION GROUP III

THE RELATIONSHIP OF SUBJECT MATTER AND METHODS OF INSTRUCTION

Frank Ficarra, Discussion Leader
Chico State College

Leland Perry, Recorder
California State College at Long Beach

Discussion Group III did three main things:

1. The members of the group unanimously endorsed the following proposition:

   "We accept in principle the establishment of a research center or centers to generate and coordinate research on learning and instruction in higher education within the California State College System."

2. The members of the group unanimously endorsed the following statement concerning one of the functions of the proposed research center or centers:

   "We believe that one function of the research center or centers should be to encourage and promote studies concerned with the structure of various disciplines along the lines suggested by Jerome S. Bruner in his book The Process of Education; that these studies should lead to further studies concerning the relationships among the various disciplines; that a precedent for these types of studies has been set by various course content improvement programs supported by the National Science Foundation; and that these studies should lead to the construction of learning models and instructional strategies."

   The preceding statement was inspired by and incorporates the basic ideas expressed in Dr. Hans Guth's brilliant paper on the relationship between subject matter and methods of instruction. It should also be pointed out that Dr. Guth would very much like to know how many people are interested in trying to apply Bruner's "structural" approach to their own disciplines.

3. Individual members of the group offered their own suggestions regarding other possible problems for research:

   (a) What is the efficiency of branched programming in higher education?
   (b) What is worth teaching and teachable?
   (c) How are relationships established in learning in college?
   (d) How can an instructor use students and colleagues to assist in the improvement of instruction?
   (e) How can we get college professors to engage in self-analysis for the purpose of improving instruction?
   (f) What are the criteria of effective teaching and how can they be measured and communicated to the professor?
   (g) What use can be made of independent (student) study and how can such study be incorporated into the college teacher's load with released time for this important activity?
   (h) Since there seems to be a movement toward stronger departments, what chance does an interdisciplinary approach have for success?
   (i) What are the values of an interdisciplinary approach?
   (j) How can we evaluate the "product"--i.e., the student--five years after time of graduation?
   (k) How can the availability of federal funds lead to studies in the improvement of instruction?
   (l) What is the relationship between academic freedom and efforts to improve instruction?
   (m) How does the structure of majors and the additional number of units required relate to better instruction?
   (n) How can advanced placement be used for improving instruction?
   (o) How can the time lag be reduced in revision of the college catalog?

In addition to the items listed above, a seven step outline for master planning what might happen as a result of this conference was presented by Dr. Kenneth Doane, California State College at Fullerton:

1. Establishment of a statewide steering committee.
2. Establishment of a special group to formulate representative hypotheses.
3. Presentation of proposals to review committees by individuals, groups, colleges, etc.
4. Proposals to be reviewed, awarded, and assigned to the appropriate body.
5. Launching of investigations.
6. Annual conferences to be held to bring about exchanges of findings, new directions, etc.
7. Establishment on each college campus of research centers on learning and instruction.

Dr. Doane also expressed the view that there should be a conference on teacher education dealing with credentials, programs, regulations, accreditation, and the relationships between various agencies.

Because of the shortage of time, group discussion of Dr. Doane's proposals was not possible.

A final point. The mimeographed proposal regarding the establishment of research centers in the State Colleges that was distributed to conference participants by Dr. David K. Newman, San Jose State College, served as the basis for the group discussion that culminated in our unanimously endorsing "in principle the establishment of a research center or centers to generate and coordinate research on learning and instruction in higher education within the California State College System."

To: Participants in the Conference on Learning in Higher Education

From: Dr. David K. Newman, San Jose State College

Re: Proposal for the establishment of research centers in the State Colleges

In response to the invitation to participate in the Conference on Learning in Higher Education, I attempted to adapt some ideas that I have considered for several years to the purposes of the conference. I gather that the intent of the meeting is to acquire ideas that might in turn be incorporated in a coordinated program of investigation to be pursued throughout the State College system. As the possibilities are exciting and the problems of carrying out such a program staggering, I would like to offer a few comments and a specific proposal.

Research projects of lesser magnitude all too frequently fall considerably short of expectations. The reasons, I feel, should be acknowledged. Either the program becomes overly centralized and is inclined to discourage the creativity of the researcher or it develops largely into a process of distributing funds in response to individual proposals and the integration of effort becomes extremely difficult. It would seem that the success of such a massive attack on the problem of higher education would depend upon our ability to develop a plan that would allow for an integrated and coordinated study but that would at the same time cultivate creative efforts on the individual campus. It is to this issue that I address the following proposal.

Clearly, the sort of study we will be concerned with at the conference would require heavy financing. Such funds are available only through the various foundations that are deeply concerned with education. In light of President Johnson's statement of interest in providing funds for research in the educational process, the time seems to be particularly ripe to request private and governmental support for just such a project. Assuming that our interests would be in line with applying for a large grant, I would request that you give serious consideration to the use of resulting funds for the establishing of research organizations rather than to request funds for the study of specific problems. To be more exact, I would like to propose that we request funds for the establishment of a unit on each campus and that such a unit would be designed to study, explore, and research the process of higher education. Such a unit could be organized as an institute; perhaps referred to as the Institute of Experimental Education. Each institute would be administered by a full-time coordinator and staffed on a part-time basis by local faculty members representing diverse disciplines. Decisions affecting coordination would be made by a centralized committee made up primarily of the coordinators of the individual institutes. A statewide publication, offered to all faculty members periodically, would summarize the activities of the individual institutes. Part-time staff of the individual institutes would be selected on the basis of a proposal that would be appropriate to the general purpose of a given institute as well as to the intent of the statewide program. "Part-time" might be defined as equivalent of either three or six units of a teaching load. Members of the institute would not be the recipients of grant money; only the State College system would be the recipient of funds that would be earmarked for the support of the institutes. I understand that a precedent exists in a similar program conducted by the Oregon State System of Higher Education.

Rather than to elaborate further, allow me to simply state the underlying philosophy of the above proposal. To have on each campus an organization that is fully and continually engaged in the study of higher education has obvious advantages. To have these organizations collectively involved in an integrated effort has astounding possibilities. A request for funds to develop permanent institutes of the kind mentioned would seem to be attractive. At least it should be considered.

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DISCUSSION GROUP IV

RESEARCH IN CURRICULUM AND TEACHING METHODS IN THE STATE COLLEGES

Ramon Ross, Discussion Leader
San Diego State College

Shepard Insel, Recorder
San Francisco State College

General Statement: The group spent its time and energies in two endeavors: (1) identifying researchable areas, and (2) making recommendations for structure to implement such research. The remainder of this report will be directed toward indicating the proposals suggested by various members of the group, followed by recommendations for implementation.

I. Suggested Proposals.

   A. Research centering on the student.

      1. Investigating the characteristics of undergraduates in learning styles and approaches--particularly as related to such dimensions as creativity.

      2. Encouragement of research activities in which students--undergraduate as well as graduate--learn to function in conjunction with instructor-researchers.

      3. Provision for a means within the college for students to follow curiosity and interests in particular areas of concern.

      4. Development of long-range plans and policies to meet the next decade of higher education problems, including large numbers of students.

      5. Investigation of the new ways to view old structure for learning, including opportunities for independent study, while at the same time maintaining the personal relationship between professor and student.

      6. Provision for inclusion of students in the planning of the curriculum in various programs consonant with his needs.

B. Research centering on the curriculum.

1. Development of teaching-learning laboratories to bring curriculum closer to reality.

2. Movement of the teacher-training program to a totally graduate branch of study following an integrated discipline approach to undergraduate education.

3. Examination of the general education program, including a look at requirements versus electives and effect on student performance.

4. Make use of research on learning to arrive at policy and decisions regarding educational programs at the State Colleges.

C. Research centering on the faculty.

1. Encouraging interrelationships between teaching-learning and research.

2. Initiation of programs designed to keep faculty members up to date in their fields--particularly in the applied areas such as business, chemistry, and teaching.

3. Development of evaluation instruments for more effective judgments of good and poor teaching.

4. Organization of research resources to secure funds to increase the effectiveness of faculty, which will be further reflected in the offerings to students.

5. Organization of faculties so that staff can be prepared to meet students using teaching and research in an integrated manner.

6. Provision for staff development, including the identification and recruitment of outstanding new staff, and the continual education of permanent staff.

D. Research centering on general topics.

1. Development of projects which will investigate the interactions between and among human beings, machines, and materials, utilizing a modified systems approach.

2. Re-examination of the formulae structure which guides programs, such as the personnel ratio, the ratio of tools to plant, the problems of using file systems, the ratio of verbal material to non-verbal.

3. Development of a climate in the State Colleges which will support and encourage experimentation.

4. Renewed efforts to place in the budget funds to permit developing conferences of this sort among the State Colleges as a regular procedure.

II. Recommendations.

A. Set up and support local research bureaus to aid professors in individual researches. These bureaus should be part of a larger system at the regional and state level.

B. Set up and support sectional meetings for individuals within various disciplines to share information about what they are doing in their own areas on their own campuses.

C. Establish regional and state research centers which will provide assistance to the various colleges in implementing research on the teaching-learning process.

D. Provide for some vehicle to enable a continuation of the conference begun January 15 and 16, 1965.

E. Request funds from local foundations, state government, and federal government to support such proposals and recommendations as named above.

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CONCLUSIONS

THE GREAT SEAL OF THE CALIFORNIA STATE COLLEGES

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CONCLUSIONS

Initially the results of this conference may be viewed in terms of the topics covered and proposals made in the texts of the major addresses and papers presented at the conference. The outlines of the topics considered and the suggestions made by the several discussion groups at the conference also provide a direction toward which subsequent efforts should be expended.

Further, the outcomes of the conference may be seen in the recommendations of the delegates at the final general session of the conference. First, the group passed a motion that the full conference endorse the three objectives stated on the first page of the program of the conference:

1. To bring together faculty from a variety of disciplines to investigate how they might coordinate their efforts toward more effective teacher education, and to consider problems of certification and accreditation;
2. To mobilize State College faculty resources for a continuing exploration of the conditions under which effective learning takes place in higher education, and to encourage fundamental research in the college teaching process;
3. To discover how to articulate multiple disciplines in a project of the magnitude anticipated above.

Second, it was the consensus of the delegates that their keen interest in research into the topics suggested in the discussions and papers be made known and that a committee representing the conference delegations be formed to develop a proposal for mobilizing statewide faculty research resources at the earliest possible moment.

Third, there was general agreement that the proposed committee inform the Chancellor of the California State Colleges that the conference endorsed a systemwide unified, coordinated approach to research in learning in higher education. It was also agreed that the committee suggest to the Chancellor that he inquire of all campuses of the California State Colleges regarding their interest in such a program and request that research proposals be sent to the committee.

Another result of the conference has been the suggestion that similar conferences be held annually or semi-annually. It has been proposed that if such conferences are held on a continuing basis, some of the conferences could be devoted to research on learning and instruction in particular subject matter areas while others would be extensions of the general considerations of this conference.

Finally, a meeting of the committee of representatives from the State Colleges was called to develop a proposal for a program of coordinating systemwide research into the conditions affecting learning in higher education. The recommendations of this follow-up committee are presented in the next section of this report.

Clearly this conference was not the final step in mobilizing faculty research efforts in this domain but represented the initiation of continuing explorations.

REPORT ON FOLLOW-UP MEETING

AND

RECOMMENDATIONS

THE GREAT SEAL OF THE CALIFORNIA STATE COLLEGES

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SYSTEMWIDE APPROACH TO STUDY OF LEARNING IN HIGHER EDUCATION AND PROPOSALS FOR CONTINUING RESEARCH

In accord with the recommendations made at the January Conference on Learning in Higher Education, representatives were selected from the delegations to the conference to attend a follow-up meeting. These representatives met at the Chancellor's Office of the California State Colleges on April 3, 1965, to develop further the suggestions for systemwide research into learning in higher education. The delegates for the follow-up meeting are listed below:

Lloyd Ahlem (Psychology and Education) - Stanislaus State College

William Curtis (Education and Psychology) - California State Polytechnic College, San Luis Obispo

Kenneth Doane (Education) - California State College at Fullerton

Frank Ficarra (Philosophy) - Chico State College

Gerhard Friedrich (English) - Academic Planning, Chancellor's Office

Duncan Gillies (Education) - Sonoma State College

James Gunderson (Geology) - California State College at Los Angeles

Donald Houghton (English and Humanities) - Sacramento State College

Shepard Insel (Psychology) - San Francisco State College

William Jones (Education) - California State College at Hayward

Anthony LaBue (Education) - San Fernando Valley State College

Francis Lord (Special Education) - California State College at Los Angeles

Ruth Martinson (Education) - California State College at Palos Verdes

Robert Maurer (Psychology) - California State Polytechnic College, Kellogg-Voorhis

David Newman (Psychology) - San Jose State College

Russell Orpet (Education) - California State College at Long Beach

John Russell (Chemistry) - Humboldt State College

Walter Schroeder (Education) - California State Polytechnic College, San Luis Obispo

Robert Smith (Education) - San Diego State College

Leonard Towner (Psychology) - California State College at Long Beach

Alexander Vavoulis (Chemistry) - Fresno State College

This group considered the desirability of developing a system-wide effort to investigate the conditions of learning in higher education and the means by which such an effort could be mobilized. The results of these considerations are detailed in the following conclusions:

I. Justification:

A. The opportunities for exploring the many conditions that influence college learning surpass those of any other system of higher education. The California State Colleges constitute a system of higher education of great size, diversity and potential. Some of the colleges are large and others are small, some are old while others are new, and some are located in large urban areas while others are in rural communities. The more than 7,000 faculty members in these colleges represent a wide variety of disciplines, and within these disciplines diverse methods of instruction and varied curricular organizations are represented.

B. The California State Colleges have a special responsibility for effective instruction. In order to fulfill this obligation, it is necessary that systematic research be carried on to discover the factors that contribute to effective instruction. Most of the work to date on the factors affecting learning has been done at the elementary and secondary levels of education, and relatively little has been done at the collegiate level. Most methods of instruction and curricular organization in higher education have been adopted without thorough research into their applicability.

C. There are many aspects of learning in higher education that need investigation. Some of these require a systemwide approach in order to discover the influence of the diverse characteristics of students, faculty, and colleges. Some research may be conducted within a single college, even within a single department, but the general applicability of the findings of such smaller-scale investigations cannot be determined without extensive study beyond the confines of a single campus.

D. Many questions about the factors affecting learning in higher education need answers. Such questions include the following:

1. What are the important and useable criteria of good teaching?

2. How may we measure the long-range effectiveness of instruction?

3. What should be taught and what is teachable?

4. To what extent does the effectiveness of a method of instruction depend upon the nature of the subject matter to be learned?

5. To what extent does the effectiveness of instruction depend upon the unique characteristics of the individual professor?

6. To what extent is the effectiveness of instruction affected by utilizing a single instructor for a single course as compared with using groups of instructors?

7. What are the most appropriate means for college professors to learn of the quality of their own instruction?

8. What is the relative effectiveness of different types of course organization: three classes on three days a week, tutorials, large lectures with small discussion sections, team teaching, etc., and in what circumstances are these most effective?

9. How satisfactory are interdisciplinary approaches to teaching?

10. What is the value of "branched" programming in higher education?

11. Does class size significantly affect learning?

12. How influential is independent study and how and where can it be used?

13. How do we enhance the learning of relationships and help students to integrate their knowledge?

14. What kinds of information about students can help in the selection of the most appropriate methods of instruction?

15. What are student attitudes toward learning on campuses and how do they affect learning?

16. How can we evaluate students' learning a considerable time after they have graduated?

17. What are the curricular problems to be solved in the development of a new college?

18. How can we prevent the dangers of increased impersonalization in college instruction?

II. Proposal for a Program Task Force:

The size and complexity of the undertaking of a systemwide effort to study the conditions of learning in higher education require that very careful planning go into the development of any such program. Planning such a large-scale endeavor requires that those responsible devote full-time to that effort. A planning group free from the interference of other responsibilities is needed.

To this end it is proposed that a Program Task Force be established. This group would be composed of a well-qualified individual from each of the California State Colleges, a coordinator, and an executive secretary. The Task Force would be responsible for developing a grant proposal for submission to a granting agency, in support of the systemwide research efforts related to learning in higher education.

The members of the group composing the Program Task Force would devote full-time for eight weeks, June 21 to August 13 during the summer of 1965 to the development of the proposal for utilizing systemwide resources. They would be paid full salaries and expenses during that period.

The general functions of the Program Task Force would be as follows:

A. Hold an initial three-day meeting on June 21, 22, 23, bringing in consultants as needed, for the purpose of coordinating their activities and planning the broad outline of the proposal.

B. Hold a second three-day meeting after about four weeks to bring together their ideas and the information they have acquired in the interim and to begin to set down the details of the proposal.

C. Hold a final three-day meeting at the end of the eight weeks to write the complete, final grant proposal.

D. In the intervals between general meetings, investigate the needs, values, and perceptions of faculty and administration on the various campuses; obtain ideas for research proposals; find out the most appropriate procedures to use in a large-scale effort; discover sources of funds; and meet together in regional subgroups to develop plans.

It is proposed that the members of the Program Task Force be selected in consultation with the members of this conference follow-up group and perhaps even be selected in part from among the members of this follow-up group. Such proposal is made because continuity is necessary in order to maintain the momentum that has been built up through the January Conference on Learning in Higher Education and this follow-up meeting.

It is proposed further that the Chancellor of the California State Colleges obtain "seed money" in the amount of approximately $75,000 to support the Program Task Force in its work during the eight weeks. The rough outline of the costs, details of which may need correction to conform to State and Federal requirements, is shown in the following section.

III. Proposed Budget for Program Task Force:

A.	Salaries 20 staff members @ $3,000 each	$60,000
B.	Expenses for three three-day meetings	
	per diem @ $25 per day	3,000
	travel @ $50 per person for each meeting	4,500
C.	Consultants' fees	1,000
D.	Miscellaneous costs (travel between meetings, telephone, stationery, etc.)	6,500
	Total	$75,000

It is recommended that the Chancellor of the California State Colleges immediately undertake to obtain funds in the amount shown above to support the Program Task Force. It is recommended that the following sources of funds be approached toward the end of obtaining the necessary support:

U. S. Office of Education

Various Educational Foundations Outside the State College System

Local Campus and Statewide Auxiliary Foundations

In conclusion, the follow-up group expresses its sense of the urgency for taking immediate steps to bring to fruition the aspirations that led to the January Conference on Learning in Higher Education, that evolved out of that conference, and that were developed by this follow-up group. We should make the most of the opportunities and responsibilities for an extensive, systemwide effort to investigate and improve the conditions of effective learning.

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APPENDICES

THE GREAT SEAL OF THE CALIFORNIA STATE COLLEGES

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Appendix A

THE CALIFORNIA STATE COLLEGES

Conference on

* LEARNING IN HIGHER EDUCATION *

San Fernando Valley State College
Administration Building

January 15-16, 1965

This two-day conference on "Learning in Higher Education" is held under the auspices of the Chancellor's Office of the California State Colleges, and supported by a grant from the U. S. Department of Health, Education, and Welfare. The purposes of this conference are manifold, and include:

1. To bring together faculty from a variety of disciplines to investigate how they might coordinate their efforts toward more effective teacher education, and to consider problems of certification and accreditation;
2. To mobilize State College faculty resources for a continuing exploration of the conditions under which effective learning takes place in higher education, and to encourage fundamental research in the college learning process;
3. To discover how to articulate multiple disciplines in a project of the magnitude anticipated above.

This project envisions the utilization of the vast resource of learning specialists in the California State Colleges. The system has some 7,000 faculty members, with more than 2,000 of these in academic disciplines related to the purposes of this conference. In addition to the large number of faculty members in fields concerned directly with research in learning, each State College has persons in other disciplines whose academic work is oriented toward this field. Faculty members participating in this conference have been drawn primarily, though not exclusively, from the areas of cultural anthropology, sociology, social psychology, educational psychology, psychology of learning, philosophy, and teacher education.

In addition to having the faculty resources needed for an inter-disciplinary approach to research in the learning processes, the California State Colleges--because of variations in size, age, location, and educational approaches--offer valuable opportunities for comparative study in this field.

It is anticipated that this conference will identify educational problems confronting the California State Colleges and mark the beginning of long-range investigation of the factors affecting learning at the college-level.

THE CALIFORNIA STATE COLLEGES

Conference on

* LEARNING IN HIGHER EDUCATION *

San Fernando Valley State College
Administration Building

Friday Morning, January 15, 1965

9:00 Registration

9:30 Introductory Comments and Announcements:

Leonard W. Towner, Conference Coordinator
Professor of Psychology
California State College at Long Beach

10:00 Address: "The Objectives of Higher Education"

E. V. Pullias, Professor of Higher Education
University of Southern California

11:00 Meetings of Discussion Groups: Organization and Planning

12:00 Luncheon

Address: "The Challenge Which Lies Ahead: Problems and Opportunities for Higher Education in the State Colleges in the Years Ahead"

Glenn S. Dumke, Chancellor
The California State Colleges

THE CALIFORNIA STATE COLLEGES
Conference on

* LEARNING IN HIGHER EDUCATION *

San Fernando Valley State College
Administration Building

Friday Afternoon, January 15, 1965

2:00 Paper: "The Criteria of Effective Learning--Cognitive Processes, Knowledge, Attitudes, and Skills"

Raphael M. Hanson, Assistant Professor of Psychology
California State College at Long Beach

2:45 Paper: "Factors Influencing Effective Learning--the Relationship of the Variability of College Student Characteristics and Methods of Teaching"

Harrison E. Madden, Associate Professor of Psychology
Fresno State College

3:30 Paper: "Factors Influencing Effective Learning--the Relationship of Subject Matter and Methods of Instruction"

Hans P. Guth, Professor of English
San Jose State College

4:15 Paper: "Promising Developments in Curricular Organization and Methods for Effective Learning"

Kenneth A. Martyn, Professor of Special Education
California State College at Los Angeles

5:00 Recess until Saturday Morning

THE CALIFORNIA STATE COLLEGES

Conference on

* LEARNING IN HIGHER EDUCATION *

San Fernando Valley State College
Administration Building

Saturday Morning, January 16, 1965

9:00 General Session: Announcements and Instructions
to Discussion Groups

9:30 Discussion Group Meetings:

to Group I "The Criteria of Effective Learning"

11:30 Discussion Leader: Cletus J. Burke
Professor of Psychology and Statistics
California State College at Hayward

Group II "The Relationship of Student Variability
and Methods of Teaching"

Discussion Leader: Henry A. Bamman
Professor of Education
Sacramento State College

Group III "The Relationship of Subject Matter and
Methods of Instruction"

Discussion Leader: Frank Ficarra
Assistant Professor of Philosophy
Chico State College

Group IV "Promising Developments in Curricular
Organization and Methods of Teaching"

Discussion Leader: Ramon Ross
Dean and Professor of Education
San Diego State College

11:30 Meeting of Discussion Group Leaders

12:00 Luncheon

THE CALIFORNIA STATE COLLEGES

Conference on

* LEARNING IN HIGHER EDUCATION *

San Fernando Valley State College
Administration Building

Saturday Afternoon, January 16, 1965

1:30 General Session: "Current Problems and Future Possibilities of Learning in Higher Education"

Panel Discussion of Group Leaders:

Cletus J. Burke
Professor of Psychology and Statistics
California State College at Hayward

Henry A. Bamman
Professor of Education
Sacramento State College

Frank T. Ficarra
Assistant Professor of Philosophy
Chico State College

Ramon Ross
Dean and Professor of Education
San Diego State College

Discussant: Stanley F. Paulson
Vice-President, Academic Affairs
San Francisco State College

Related Concerns of Conference Participants

3:30 Closing Remarks: Ellis E. McCune
State College Dean, Academic Planning
The California State Colleges

4:00 Adjournment

Appendix B

CONFERENCE PARTICIPANTS

Chancellor's Office - The California State Colleges

Dr. Glenn S. Dumke
Chancellor
California State Colleges

Dr. Raymond A. Rydell
Executive Vice Chancellor
California State Colleges

Dr. Ellis E. McCune
State College Dean, Academic Planning
California State Colleges

Dr. Gerhard Friedrich
Associate Dean, Academic Planning
California State Colleges

Mr. Thomas H. McGrath
Associate Dean
Institutional Relations and Student Affairs
California State Colleges

Mr. David B. Brooks
Research Technician
California State Colleges

Conference Coordinator

Dr. Leonard W. Towner
CSC - Long Beach
Psychology

Speakers

Dr. E. V. Pullias
University of Southern California
Higher Education

Speakers

Dr. Raphael Hanson
CSC - Long Beach
Psychology

Dr. Harrison Madden
Fresno State College
Psychology

Dr. Hans Guth
San Jose State College
English

Dr. Kenneth Martyn
CSC - Los Angeles
Special Education

Discussion Leaders

Dr. Stanley Paulson
San Francisco State College
Speech

Dr. Cletus Burke
CSC - Hayward
Psychology

Dr. Henry Bamman
Sacramento State College
Education

Dr. Frank Ficarra
Chico State College
Philosophy

Dr. Ramon Ross
San Diego State College
Educational Psychology

Statewide Academic Senate

Dr. Samuel Wiley
CSC - Long Beach
Philosophy

Statewide Academic Senate

Dr. Lew Oliver
Chico State College
History

Dr. Nicholas Hardeman
CSC - Long Beach
History

Delegates

Name	Institution	Field
Dr. Kenneth Doane	CSC - Fullerton	Education
Dr. Joseph Landon	CSC - Fullerton	Music
Dr. C. Elmer Schneider	CSC - Fullerton	English
Dr. John Trego	CSC - Fullerton	Business
Dr. George Turner	CSC - Fullerton	Biology
Dr. Lewie Burnett	CSC - Hayward	Education
Dr. Peter Geiser	CSC - Hayward	Sociology
Dr. Robert Hall	CSC - Hayward	Audio-Visual Education
Dr. William E. Jones	CSC - Hayward	Education
Dr. Herman Yeager	CSC - Hayward	Philosophy of Education
Dr. Harold Hubbard	CSC - Long Beach	Sociology
Dr. David Perry	CSC - Long Beach	Philosophy
Dr. Leland Perry	CSC - Long Beach	Education
Dr. Russell Orpet	CSC - Long Beach	Educational Psychology
Dr. Richard Kalish	CSC - Los Angeles	Psychology
Dr. Francis Lord	CSC - Los Angeles	Education
Dr. Edward Sayles	CSC - Los Angeles	Philosophy
Dr. Donald MacPhee	CSC - Palos Verdes	History
Dr. Ruth Martinson	CSC - Palos Verdes	Educational Psychology
Dr. Robert Roberts	CSC - San Bernardino	History
Dr. William Curtis	Cal Poly - SLO	Educational Psychology
Dr. Walter Schroeder	Cal Poly - SLO	Education
Dr. Ben Gantz	Cal Poly - KV	Psychology
Dr. Robert Maurer	Cal Poly - KV	Psychology

Name	Institution	Field
Dr. David Hicks	Chico State College	Psychology
Dr. Joe Smith	Chico State College	Education
Dr. Richard Sparks	Fresno State College	Education
Dr. Alexander Vavoulis	Fresno State College	Chemistry
Dr. John Russell	Humboldt State	Chemistry
Dr. Patrick McGlynn	Humboldt State	Education
Dr. Donald Houghton	Sacramento State	English
Dr. H. Orville Nordberg	Sacramento State	Education
Dr. Dale Johnson	San Diego State	Sociology
Dr. Robert Smith	San Diego State	Education
Dr. Robert Durrenberger	San Fernando Valley	Geography
Dr. Anthony LaBue	San Fernando Valley	Education
Dr. Emil Lucki	San Fernando Valley	History
Dr. Arthur Marion	San Fernando Valley	Educational Psychology
Dr. Arnold Roe	San Fernando Valley	Engineering
Dr. Richard Axen	San Francisco State	Higher Education
Dr. Ralph Goldman	San Francisco State	Political Science
Dr. Shepard Insel	San Francisco State	Psychology
Dr. Samuel Levine	San Francisco State	Educational Psychology
Dr. Bernhard McKenna	San Francisco State	Educational Psychology
Dr. James Brown	San Jose State	Education
Dr. Harold Hailer	San Jose State	Education
Dr. David Newman	San Jose State	Psychology
Dr. Galen Clothier	Sonoma State	Biology
Dr. William Cord	Sonoma State	Modern Language
Dr. Duncan Gillies	Sonoma State	Educational Psychology
Dr. Andrew Rygh	Sonoma State	History
Dr. Lloyd Ahlem	Stanislaus State	Educational Psychology
Dr. Charles Farrar	Stanislaus State	Education

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Appendix C

DISCUSSION GROUP MEMBERS

GROUP I

Dr. Cletus Burke - Leader
Dr. Lloyd Ahlem
Dr. Ralph Goldman
Dr. Harold Hailer
Dr. Raphael Hanson
Dr. David Hicks
Dr. William Jones
Dr. Anthony LaBue
Dr. Joseph Landon
Dr. Samuel Levine
Dr. Orville Nordberg
Dr. Russell Orpet
Dr. Andrew Rygh
Dr. Edward Sayles
Dr. William Schroeder
Dr. Robert Smith
Dr. Samuel Wiley

GROUP II

Dr. Henry Bamman - Leader
Dr. Galen Clothier
Dr. William Curtis
Dr. Charles Farrar
Dr. Peter Geiser
Dr. Harold Hubbard
Dr. Harrison Madden
Dr. Arthur Marion
Dr. Ruth Martinson
Dr. Patrick McGlynn
Dr. Bernhard McKenna
Dr. David Newman
Dr. Elmer Schneider
Dr. Joe Smith

GROUP III

Dr. Frank Ficarra - Leader
Dr. Richard Axen
Dr. Lewie Burnett
Dr. William Cord
Dr. Kenneth Doane
Dr. Robert Durrenberger
Dr. Hans Guth
Dr. Nicholas Hardeman
Dr. Dale Johnson
Dr. Richard Kalish
Dr. Donald MacPhee
Dr. Robert Maurer
Dr. Leland Perry
Dr. George Turner
Dr. Alexander Vavoulis
Dr. Herman Yeager

GROUP IV

Dr. Ramon Ross - Leader
Dr. James Brown
Dr. Ben Gantz
Dr. Duncan Gillies
Dr. Robert Hall
Dr. Donald Houghton
Dr. Shepard Insel
Dr. Francis Lord
Dr. Kenneth Martyn
Dr. Lew Oliver
Dr. David Perry
Dr. Robert Roberts
Dr. Arnold Roe
Dr. John Russell
Dr. Richard Sparks
Dr. John Trego

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Appendix D

Factors Influencing Excellence in College and University Teaching *

EARL V. PULLIAS

The purposes of this paper are to (*a*) state some of the insights about effective teaching at the level of higher learning that have been achieved through research and thought; (*b*) suggest approaches to research that may be fruitful.[1] The insights gained are partial and tentative; each of them suggests many problems for further research—research that is discouragingly difficult, as past efforts have taught us. This difficulty results from at least three basic causes: the extreme complexity of the problems, the inappropriateness or inadequacy of the methods of research so far developed, and the tangle of preconceptions and misconceptions that have grown up around college teaching, distorting its nature and confusing its functions.

But we must not be discouraged by these baffling difficulties. In our nation, more than a third of college-age young people are engaged in some form of college experience. Probably a steadily increasing proportion of both young and old will be enrolled. The quality and meaning of that experience are determined in large measure by the effectiveness of college teachers and college teaching. Although objective evidence is extremely hard to come by, my guess is that the job is, in the main, being poorly done.[2] However, peevish indictment is of little worth. Our task is to search for insights that may lead toward greater effectiveness.

These insights can best be set forth as questions or problems followed by tentative hypotheses about the relation of these problems to effective college teaching. What then are some of the major problems involved in college teaching?

Factors in effective teaching

1. What is the central nature—the essence, as it were—of the higher educative process? Basically, what are we attempting to do in the colleges and universities? There is no simple answer to these questions. Answers begin to arise out of a knowledge of the higher learning as it has developed in Western civilization over the past one thousand years.[3] Indeed, its central spirit roots in the attitudes and insights of the ancient Greeks. From the standpoint of college teaching, I particularly like a statement of Alfred N. Whitehead:

> The justification for a university is that it preserves the connection between knowl-

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[1] In this paper no attempt is made to review the research on teaching at the college and university level. Reviews of this research are available ("Higher Education," *Review of Educational Research*, October 1961; see also W. C. Eells, *College Teachers and College Teaching* and *Supplements* [Atlanta, Ga.: Southern Regional Education Board, 1957, 1959, 1962]). In a previous article I undertook to examine critically some recent developments in this area (E. V. Pullias, "A Critical Examination of Research on College Teaching," *California Journal of Educational Research*, March 1962). In general, it must be said that the research on college teaching has not to this time contributed significantly to the improvement of the complex art of teaching.

[2] George Williams, *Some of My Best Friends Are Professors* (New York: Abelard-Schuman, Ltd., 1958).

[3] John S. Brubacher and Willis Rudy, *Higher Education in Transition* (New York: Harper & Bros., 1958); Richard Hofstadter and Walter P. Metzger, *The Development of Academic Freedom in the United States* (New York: Columbia University Press, 1955).

* A chapter in forthcoming book, A Search for Understanding, William C. Brown, Publishers, 1965. Used with permission of publisher.

> edge and the zest of life, by uniting the young and the old in the imaginative consideration of learning. The university imparts information, but it imparts it imaginatively. At least, this is the function which it should perform for society. A university which fails in this respect has no reason for existence. This atmosphere of excitement, arising from imaginative consideration, transforms knowledge. A fact is no longer a bare fact: it is invested with all its possibilities. It is no longer a burden on the memory: it is energizing as the poet of our dreams, and as the architect of our purposes.[4]

Our task, however, is not to explore the meaning and nature of the college experience, but to establish a setting for the following *hypothesis:* A college teacher's effectiveness is profoundly influenced by the degree of his understanding of the nature and function of higher education; or, a teacher's growth toward greatness or excellence in teaching will be seriously limited if his understanding of the process of higher learning is distorted or thin.

2. What is the college teacher's role or basic function in this process? What must he do and do well in order to teach effectively at the college level? There seem to be four more or less distinct areas of responsibility in college teaching:[5] (*a*) planning or plotting objectives based on experience and the learning that may rise from the experience; (*b*) guiding the students and teacher in securing the experience (reading, discussion, writing, and so forth) that is likely to produce the learning desired; (*c*) enlivening and enriching the experience to give it the qualities of life, meaning, relevancy, success —to make it "the imaginative consideration of learning"; (*d*) evaluating the whole process so that the quality of the teaching-learning experience may be constantly improved.

These processes are interrelated and overlap in various ways, but properly functioning as a whole, they manifest themselves in the intricate art of teaching.

Hypothesis: The teacher's conception of his role or task as a college teacher will influence significantly his teaching effectiveness. (That is, he needs to know with some clarity what is his part in the learning adventure.)

3. What are the principal features of the optimum learning climate? In what way and to what extent does the whole gestalt in which the teaching-learning takes place affect the quality of learning? Here we are in the area of speculation or conjecture, but much in man's thought and experience suggests that we are near a deposit of rich ore.

Personally, I am convinced that there is potent reality behind the concept of "the spirit of place." Of course it is not geography to which place as thus used refers; it is the configuration of elements that make an institution—a home, a church, a college or university. When the elements are present in optimum quantity and relationship, a creative whole takes shape that has great transforming power.[6] The forces working are not yet clear, but attempts to study the influence of colleges and universities on students always list at least this factor of general atmosphere.[7] One of the most convincing documents on this point is the little book *College in a Yard*, edited by Brooks Atkinson.[8] Here, thirty-nine graduates of Harvard, ranging over more than sixty years (representing four very different college administrations), undertake to say what Harvard "meant to them." The result is striking evidence of the significance of the institution as a whole in the educative process. I believe the alumni of a thousand colleges would give essentially the same witness.

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[4] Whitehead, *The Aims of Education* (New York: Macmillan Co., 1929), p. 97.

[5] These concepts are developed in more detail in Earl V. Pullias and Aileen Lockhart, *Toward Excellence in College Teaching* (Dubuque, Iowa: William C. Brown Co., 1963).

[6] Ordway Tead, *The Climate of Learning* (New York: Harper & Bros., 1958).

[7] Philip E. Jacobs, *Changing Values in College* (New York: Harper & Bros., 1957); Nevitt Sanford, ed., *The American College* (New York: John Wiley & Sons, 1962); Edward D. Eddy, Jr., *The College Influence on Student Character* (Washington: American Council on Education, 1959).

Hypothesis: The institution as a whole educates perhaps more profoundly and more permanently than any specific, segmented process such as single classes or teachers. Or, the experience of a course, the work of an individual teacher, is enriched, reinforced, deepened, and broadened by the wider climate in which it operates.

4. What is the distinguishing difference between the acceptable, reasonably good teacher who makes his way by one means or another up the professional ladder to tenure, and what might be called the great or inspired teacher? Apparently no identifiable and meaningful single pattern of traits[9] is necessary to this greatness at the college level. Yet certainly there is a difference. The conviction grows in my mind as I study the life and work of particularly distinguished teachers that nearest to the essence[10] of this greatness is an almost childlike relation to reality (including persons and things), which a large proportion of people lose as they meet the demands of life. These great teachers seem to have a special measure of the ability to experience, and to communicate to others, symbolic or abstract representations of experience as if they were immediate, direct, fresh, vivid experience. Learning mediated by them has the all-important quality of life. I believe a large proportion of college teachers could achieve this quality of greatness in teaching.

Hypothesis: There is a distinguishable and meaningful difference between the acceptable or adequate and the great or inspired teacher. If teachers had a clear and compelling vision of greatness for teaching, they would more frequently grow toward their full potential of excellence, chiefly by cultivating the roots or ground of that growth.

5. What must the college teacher *know* and *be*—what must he be learning and becoming—in order to be the most effective teacher?[11] Perhaps this problem is clear without additional background. Yet in the preparation of college teachers, the profession remains seriously vague about what the teacher should *know* and *be* in order to achieve his maximum effectiveness. More or less by common agreement, he should have the doctorate in his area of special interest. Although there has been considerable talk and writing on this subject,[12] relatively little is known about the relation of the usual training for the doctorate and the knowledge and quality of person that may be crucial to college teaching. Neither the depth and breadth of knowledge nor the richness of being is as important for greatness in teaching as *growth* in learning and being.

Hypothesis: The effective college teacher has the following characteristics:

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[8] Cambridge, Mass.: Harvard University Press, 1958.

[9] See David G. Ryans, *Characteristics of Teachers* (Washington: American Council on Education, 1960) for a report of painstaking research on this problem at the elementary and secondary levels.

[10] Sidney Cox, *A Swinger of Birches* (New York: New York University Press, 1957); Houston Peterson, *Great Teachers* (New Brunswick, N.J.: Rutgers University Press, 1946).

[11] Abraham Maslow, *Toward a Psychology of Being* (Princeton, N.J.: D. Van Nostrand Co., 1962); Carl R. Rogers, *On Becoming a Person* (Boston: Houghton Mifflin Co., 1961).

[12] Earl J. McGrath and Charles H. Russell, *Are Liberal Arts Colleges Becoming Professional Schools?* (New York: Teachers College, Columbia University, 1958); Oliver C. Carmichael, *Graduate Education* (New York: Harper & Bros., 1961).

(*a*) He is expertly informed in an area of experience (customarily called a field or subject), but, more important, he is continuously learning in that and related areas; (*b*) he guards against and overcomes harmful narrowness by wide observation and, especially, by thoughtful reading outside his specialty; (*c*) he is growing as a person toward his full potential, for in essence he will be no greater teacher than he is a person.

6. What are the principal obstacles to greatness in college teaching? For the modern teacher some of the most important of these seem to be: (*a*) Low general campus morale expressed in various levels and intensity of bickering in the academic community; (*b*) imbalance of emphasis upon any phase of the learning climate (academic, social, athletic, and so forth); (*c*) fragmentation of teacher and student effort; (*d*) the rush and tension of modern life, aggravated by a growing tendency toward "moonlighting"; (*e*) the pressure to teach or learn too much.

Hypothesis: Effectiveness in college teaching may be obstructed or destroyed by significant identifiable negative factors.

7. What kind of students are necessary to effective college teaching? Teaching is most effective when the type of experience is appropriate to the level and type of abilities and skills of the students, to their maturity level, and to their interests. Given freedom from handicapping defects, the most significant qualities of the student are probably motivation, work habits, and imagination.

Hypothesis: Disproportionate emphasis upon ability narrowly conceived is a serious hindrance to excellence in teaching.

8. What is the nature of learning at the college and university level? Under what conditions does the most effective learning take place? The complexity and significance of this problem are so patent that little comment is required here.[18] Yet it may be true that the typical college teacher has given little more than passing thought to the nature of learning or its optimum conditions at the college level.

Hypothesis: (*a*) Learning arises from vivid, highly motivated experience (interaction with reality or the symbols of reality) particularly at the level of thought; (*b*) the teacher's chief function is to see that the student gets these experiences imaginatively in depth and breadth; (*c*) there is no adequate substitute at present for intimate, personal interaction among teachers and students, students and students, and teachers and teachers.

Implications for research

The problems we have stated and the hypotheses related to them are more or less capable of being tested by research. Perhaps if concepts of research could be broadened to include all search for better understanding, then these problems and hypotheses could suggest directions for research about effective college teaching that would be *increasingly fruitful.*

There are certain warnings or safeguards which should be kept in mind as such research is planned.

1. The attack should be on large, central issues and not upon mere fragments whose meaning for the main problems may never be clear.

2. An attempt should be made to overcome narrowing preconceptions about methods of research. Perfectionism in research design and method tends to stifle

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[18] Russell M. Cooper, ed., *The Two Ends of the Log* (Minneapolis: University of Minnesota Press, 1958); Roger H. Garrison, *The Adventure of Learning in College* (New York: Harper & Bros., 1959); Harold Taylor, *On Education and Freedom* (New York: Abelard-Schuman, Ltd., 1954).

imagination and creativeness, and to place greater emphasis on technique than on the problem.

3. Students should be urged to use a variety of methods of research. Whatever approach promises to produce new insights should be freely and fully explored.

4. Carefully conceived and argued theoretical discussion should be encouraged.[14] Some of our most thoughtful and imaginative students and teachers should be stimulated to slip the bridles off their minds and let them run almost irresponsibly in the wind. Our time, it seems to me, is in great need of imaginative theory.

5. Constant care must be taken to make all generalizations pass the most strict scientific tests. The more flexible approach to research which I am suggesting is no invitation to, nor defense of, careless and poorly designed research, nor of loose, unsubstantiated generalizations. We should apply the best technique we know, but should not allow our loyalty to technique to frighten us into sterility. The most creative researchers in the history of science (Newton, Pasteur, Freud, Einstein) have not been bound by conventional thought or technique.

Operating within a framework of *responsible freedom*, I would hope we could tackle by every method of research we know such large problems as are discussed in this paper, for such problems seem to be intimately related to effective college and university teaching.

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[14] It seems to me that Gardner Murphy's *Freeing Intelligence through Teaching* (New York: Harper & Bros., 1961), Jerome S. Bruner's two little books *The Process of Education* (Cambridge: Harvard University Press, 1961) and *On Knowing* (Cambridge: Harvard University Press, 1962), and Loren Eiseley's *The Mind as Nature* (New York: Harper & Row, 1962) are steps in the right direction.